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Natural History

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1843.

A

FLORA

OF THE

STATE OF NEW-YORK,

COMPRISING

FULL DESCRIPTIONS OF ALL THE INDIGENOUS AND NATURALIZED PLANTS HITHERTO DISCOVERED IN THE STATE;

WITH REMARKS ON THEIR ECONOMICAL AND MEDICINAL PROPERTIES.

By JOHN TORREY, M.D., F.L.S.

VOL. I.

ALBANY:
CARROLL AND COOK, PRINTERS TO THE ASSEMBLY.
.....
1843.

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SAMUEL YOUNG,
Secretary of State.

Albany, 1843.

PREFACE.

THE Act for a Geological Survey of New-York, passed by the Legislature in 1836, makes provision for a full account of the Natural History of the State. Having been appointed to take charge of the Botanical Department of the Survey, I present in these volumes the results of my labors.

From the following historical sketch, it will be seen, that while much has been done to make known the vegetable productions of the State, this is the first separate work in which all the known plants of New-York have been enumerated and described.*

The earliest treatise on the Botany of New-York, that has come under my observation, is the "Plantæ Coldenhamiæ" of Governor COLDEN, published in the Acts of the Royal Society of Upsal for the year 1744. It is an account of the plants growing spontaneously in the neighborhood of Coldenham, in Orange County, and embraces only the first twelve classes of the Linnæan System. The second part was (I believe) never published.†

KALM, a pupil of LINNÆUS (and afterwards a Bishop), visited North America in 1747, and collected plants in New-York, which are often referred to in the writings of LINNÆUS, and many of them are preserved in his herbarium.

Dr. WANGENHEIM, a Hessian surgeon in the British Army during the American Revolution, made numerous observations on the plants of this country, particularly on those of New-York. After his return to Germany, he published a work on the trees of North America.

MICHAUX the elder travelled in the northern and southern parts of the State in 1792, while engaged in collecting plants for the French Government, as well as for his *Flora Boreali-Americana*, which was published in Paris in 1803. He was accompanied by his son, who afterwards revisited this country, and travelled extensively in most of the States east of the Mississippi, and, on returning to Europe, published, in 1810, his splendid work on the Forest Trees of North America. The younger MICHAUX examined the valley of the Hudson, the borders of Lake Champlain, and a considerable portion of the western counties.

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* Much of this historical matter was furnished for Governor SEWARD's Introduction to the Natural History of the State.

† See Dr. GRAY's memoir of COLDEN, in Silliman's Journal.

The late Dr. C. W. EDDY, of New-York, was a zealous botanist, and devoted much attention to the plants of this State; but his herborizations were mostly confined to the vicinity of the metropolis and Long Island. In 1808, he published in the New-York Medical Repository a list of plants growing spontaneously around Plandome, in Queens county.

The same year, PURSH, author of the *Flora Americæ Septentrionalis*, made an extensive botanical tour on foot through the State, the fruits of which are recorded in his work.

Major J. LE CONTE (now, I believe, the oldest botanist in the United States) has for many years assiduously studied the plants of North America. Among his valuable publications is a catalogue of 468 species of indigenous and naturalized plants growing spontaneously on the island of New-York. This was inserted in the American Medical and Philosophical Register for 1811, edited by Dr. HOSACK and Dr. FRANCIS.

In 1814, the late Professor JACOB GREEN published at Albany his list of the native plants of the State of New-York, in the compilation of which he was assisted by Messrs. PURSH, EDDY, LE CONTE, and WHITLOW.

In 1817, at the request of the Lyceum of Natural History, I prepared a list of the plants growing within thirty miles of the city of New-York, which was not published, however, until 1819. It embraced about 1300 species (of which several new ones were described), including a considerable portion of the Cryptogamia.

The first edition of the Manual of Botany, by the late Prof. EATON, of Troy, appeared in 1818. This well known work passed through eight editions, the last of which, in an enlarged form, under the title of North American Botany, is dated 1840, and was prepared by the united labors of Prof. EATON and JOHN WRIGHT, M. D. The authors have indicated most of the rarer plants which they had ascertained to be indigenous to New-York.

The first volume of my Flora of the Middle and Northern States, according to the Linnæan System, was published in 1823 and 1824, and embraced the classes from Monandria to Icosandria inclusive. Before the second volume was completed, the work was interrupted by other labors, and finally abandoned, under the persuasion that I could better serve the cause of North American Botany by adopting the natural system. A Compendium of the Flora was, however, given to the public in 1826. These works contain most of the observations I had then made on the plants of New-York.

In 1833, Prof. L. C. BECK gave us his well digested and comprehensive *Botany of the Northern States*. With the exception of my account of Dr. James's plants collected in Long's first Expedition, this was the first American work in which the Natural System was followed.

The next publication relative to the Flora of our State, is a Catalogue of Plants growing in the vicinity of Troy, by Prof. J. HALL and Dr. J. WRIGHT. This appeared in 1836.

Beside these contributions to the Botany of New-York, various articles on the same subject are inserted in scientific and other periodicals.

In the Transylvania Journal of Medicine for 1832, is a description of some new or rare

plants found near Troy by the late Mr. H. H. Eaton. Silliman's Journal contains descriptions of New-York plants by Mr. David Thomas, Prof. Dewey and others. In the Reports of the Regents of the University are several local catalogues of plants, which are useful in giving the geographical range of many species. Some of the most important of these lists are the following: Rare plants detected in Westchester County, by Samuel B. Mead, M. D., published in the Report for 1830; List of indigenous plants growing in the vicinity of Kinderhook, by W. V. S. Woodworth, to be found in the Report of 1840; Plants growing near Aurora, Cayuga County, by Alexander Thompson, M. D., printed in the Report of 1841; Catalogue of plants in and about the city of Rochester, with their times of flowering for 1841, in the Report of 1842. In the same report is a very full and accurate catalogue of the plants of Oneida County, by P. D. Knieskern, M. D. In the Report of the following year is a Botanical Calendar for the year 1842, by Prof. Dewey. The Annals of the New-York Lyceum contain an excellent paper by Dr. Gray, on some rare plants of the northern and western counties, besides other articles in which New-York plants are described or noticed by Dr. Gray and myself.

Lastly I may be allowed to notice the Flora of North America, by Dr. Gray and myself, not only because it is published in New-York, but also as containing the results (as far as the work extends) of our numerous observations on the plants of this State.

There are few regions north of Virginia, possessed of greater interest to the botanist, than the State of New-York. The geographical range of plants being limited by the characters of the soil and rocks as well as by temperature, and the geological features of the State being greatly diversified, our Flora embraces nearly as many species as the whole of New-England. The able geologists of the Survey have fully described the physical characters of the surface, so that I may omit such details here. For botanical purposes, it is sufficient to divide the State into four Floral Districts, which nearly correspond with the Zoological Regions of Dr. Dekay. With the exception of the first, they cannot be very accurately circumscribed.

1. The Atlantic Region. This consists of Long Island alone; for although Staten Island, as well as the Island of New-York and a part of Westchester, are within the limits of salt water, they belong, botanically considered, to the Second Region. Besides numerous maritime plants, Long Island affords many species that are found in no other part of the State. Some of these characteristic plants are the following, viz: *Clematis ochroleuca*, *Polygala lutea*,* *Hudsonia ericoides*, *Drosera filiformis*, *Ascyrum stans*, *Arenaria squarrosa*, *Clitoria Mariana*, *Eupatorium leucolepis*, *E. rotundifolium & aromaticum*, *Aster spectabilis*, *Chrysopsis falcata*, *Coreopsis rosea*, *Lobelia Nuttallii*, *Euphorbia Ipecacuanha*, *Eleocharis tuberculosa*, and *Panicum verrucosum*. Most of these plants are also characteristic of the great tertiary region of the United States, particularly of that portion of it which embraces the pine barrens of New-Jersey.

* See Appendix.

2. The Hudson Valley Region. This includes all that portion of the State which is watered by the Hudson and its tributaries, as far north as Washington and Saratoga counties, together with the valley of the Mohawk east of the Little Falls; and also Staten Island. Its vegetation, taken as a whole, is similar to that of Connecticut, the western part of Massachusetts, the northern part of New-Jersey, and Pennsylvania east of the Blue Ridge. It is difficult to indicate its characteristic plants; but very few of the following are found in any of the other regions: *Ranunculus pusillus*, *Brasenia peltata*, *Nasturtium hispidum*, *Silene Pennsylvanica*, *Lespedeza capitata*, *Crotalaria sagittalis*, *Prunus Americana*, *Acer dasycarpum*, *Ludwigia sphærocarpa*, *Echinocystis lobata*, *Crantzia lineata*, *Vernonia Noveboracensis*, *Mulgedium acuminatum*, *Clethra alnifolia*, *Kalmia angustifolia*, *Hottonia inflata*, *Quercus olivæformis & macrocarpa*, *Betula rubra*, *Scirpus planifolius*, and *Atheropogon apludoides*.

In the southern part of this region (particularly the island of New-York and Staten Island) there occur a few species (such as *Desmodium viridiflorum* and *Stylosanthes elatior*), that are found in no other part of the State except Long Island. The mountainous districts present a vegetation more resembling that of the northern counties. Thus, the *Myrica Gale* and *Arenaria Grœnlandica* occur on the higher summits of the Shawangunk Mountains; *Potentilla tridentata* and *Pyrus Aucuparia*, on the peaks of the Fishkill Range; while on the Catskill mountains (some of which attain an altitude of between 3000 and 4000 feet) are found *Goodyera repens*, *Oxalis Acetosella*, *Solidago thyrsoidea*, *Abies balsamea & alba*, and *Betula papyracea*.

3. The Western Region is bounded on the south by the State of Pennsylvania, on the west by Lakes Erie and Ontario, on the north by an irregular line extending along the southern borders of Jefferson and Lewis counties to the Little Falls; so that it includes Oswego, the greater portion of Oneida, and the southern part of Herkimer counties. Eastwardly it blends with the Hudson River Region. Its vegetation greatly resembles that of the middle portions of the country east of the Mississippi, lying between the Great Lakes and the Ohio River. Some of the peculiar species are the following: *Jeffersonia diphylla*, *Hydrastus Canadensis*, *Arabis dentata*, *Solea concolor*, *Ptelea trifoliata*, *Trifolium reflexum*, *Phaca neglecta*, *Gymnocladus Canadensis*, *Gillenia trifoliata & stipulacea*, *Erigenia bulbosa*, *Fedia Fagopyrum*, *Solidago Ohioensis*, *Collinsia verna*, *Zigadenus glaucus* and *Cyperus Schweinitzii*.

A few Canadian plants find their way from a considerable distance north, into this region, without being known to occur in the intervening country; such as *Viola Selkirkii*, *Valeriana sylvatica*, *Pinguicula vulgaris*, and *Primula Mistassinica*.

4. The Northern Region includes all that part of the State which lies north of the Mohawk Valley and the Hoosick River. It is bounded on the west by the River St. Lawrence and the northeastern extremity of Lake Ontario, and on the east by Lake Champlain and the State of Vermont. Much of the central part of this region is still a wilderness. Towards the east and south the land is elevated with high mountains, among which are numerous small lakes. Here are the sources of the Hudson, the Au Sable, the Saranac,

Black, Racket, and many other smaller rivers. Some of the mountains, such as Mount Marcy, Mount M'Intyre, and Whiteface, rise to the height of from 4900 to 5400 feet, and afford a truly alpine vegetation. On some of the higher peaks are found *Epilobium alpinum*, *Solidago Virgaurea*, *Rhododendron Lapponicum*, *Vaccinium uliginosum*, *Diapensia Lapponica*, *Empetrum nigrum*, *Poa alpina*, *Hierochloa alpina*, *Juncus trifidus*, *Carex saxatilis*, *Aira atropurpurea*, and other plants peculiar to high mountains of the northern hemisphere, or natives of the arctic zone. Some of the characteristic plants of the less elevated portions of this region are *Anemone multifida*, *Draba arabizans*, *Ceanothus ovalis*, *Nardosmia palmata*, *Aster ptarmicoides*, *Arnica mollis*, *Halenia deflexa*, *Batschia canescens*, *Dracocephalum parviflorum*, *Habenaria obtusata*, *Alnus viridis*, *Allium Canadense*, *Juncus stygius* and *Equisetum scirpoides*. In its general features, the botany of this region is very similar to that of Southern Canada and the Northern New-England States.

Some plants are common to the Northern and Western Regions, but do not occur in the Valley of the Hudson, nor on Long Island; such as *Turritis stricta*, *Nasturtium natans*, *Hypericum ellipticum*, *Astragalus Canadensis*, *Geum rivale & Canadense*, *Comarum palustre*, *Tiarella cordifolia*, *Gnaphalium decurrens*, *Pyrola uniflora*, *Shepherdia Canadensis*, *Streptopus amplexicaulis*, and *Juncus filiformis*.

The State of New-York is the northern limit of a considerable number of species. Thus *Magnolia acuminata* occurs on the Niagara River, and on the borders of Lake Ontario, somewhat beyond the latitude of 43°, while its eastern limit is the northern part of Columbia County. *Opuntia vulgaris* has been found in the southern part of Herkimer County. *Hydrocharis cordifolia*, which Dr. Bradley detected on the swampy borders of Lake Ontario, is a remarkable instance of a southern plant being found so far north, without occurring in the intervening country. *Aconitum uncinatum* is sparingly seen on the banks of the Chenango River, in latitude 42°. *Nelumbium luteum* is a native of Big Sodus Bay on Lake Ontario, in lat. 43° 20′; beyond which, to the north, it has not hitherto been observed. Long Island is the northern limit of numerous species, such as *Quercus Phellos*, *prinoides & nigra*, besides many of those which have been enumerated as the peculiar plants of that region.

The southern limits of plants are not so well defined as the extent of their range towards the north; for many northern species are found along the tracts of mountains, where the temperature is low and the air moist, several degrees south of their ordinary places of growth. Still we have a few plants in our Flora, which, I believe, have not been observed south of the State of New-York; such as *Hippuris vulgaris*, *Myriophyllum tenellum*, *Selinum Canadense*, *Valeriana sylvatica*, *Pterospora Andromedea*, *Populus Balsamifera*, and *Shepherdia Canadensis*.

We can boast of but few plants that are unknown out of the limits of our Flora. *Pyrola uliginosa*, a new species, is almost the only unequivocal one of this class. *Scolopendrium vulgare* (an European fern) is certainly indigenous in the western part of the State, and I have no information of its having been found elsewhere in North America. The rarest of all ferns, *Onoclea obtusilobata*, first described by Schkuhr, and now unknown to any

European herbarium, was found more than twenty years ago by Dr. Jedediah Smith, in Washington County. He obtained only two specimens, both of which (though in a mutilated state) are still in existence, and no others have since been obtained. Diligent but unsuccessful search has been made for it in the original locality of Dr. Smith.

It is remarkable, that on the shores of the Great Lakes, there are certain plants, the proper station of which is the immediate neighborhood of the ocean, as if they had constituted part of the early Flora of those regions, when the lakes were filled with salt water, and have survived the change that has taken place in the physical conditions of their soil. Among such species may be enumerated *Cakile maritima*, *Hudsonia tomentosa*, *Lathrus maritimus*, and *Euphorbia polygonifolia*.

Of proper maritime phenogamous plants, the shores of Long Island and Staten Island, as well as the counties of New-York and Westchester where they border on the Hudson and the Sound, afford about fifty species, none of which are seen beyond the limits of salt, or, at least, brackish, water, except a few which occur in the saline soils of Salina and Syracuse.

The whole number of Flowering Plants hitherto found in the State is about 1450 species, which is 100 more than were enumerated in my preliminary Report of 1840. Of Ferns and their allies, 60 species belong to our Flora. The other cryptogamic orders have not yet been fully determined, as I find their number so great that they could not be included in the two volumes to which my first Report was limited. An account of such as belong to the orders Musci, Hepaticæ, Lichenes, Characeæ and Algæ, will be given in a future volume if authorized by the Legislature. The Fungi constitute so peculiar a department of the Vegetable Kingdom, and their species are so extremely numerous, that a botanist, to do them justice, must make them almost an exclusive study. The late Rev. M. de Schweinitz has given us a list of more than 3000 species belonging to the United States, most of which he found in the State of Pennsylvania. There can be little doubt that a very large proportion of them grow in New-York; but in collecting these plants, I have been obliged to confine myself to the more important species.

A Report on the Botany of our State would possess little value, unless the plants were described so that they could be identified; and the only way in which this could be done (unless the descriptions are extended to an unreasonable length), is by employing botanical language, and by arranging the plants in methodical order. Hence I was induced to put the matter of my report in the form of a Flora. Having adopted this plan, I could not hesitate for a moment as to the system which ought to be used; for the artificial classification of Linnæus, having accomplished the object for which it was designed, may be considered as more than useless in the present advanced state of Botany. The natural arrangement has therefore been followed. In defining the orders, it has been deemed advisable, in many instances, to omit characters that belong exclusively to exotic plants. The groups of orders have been adopted, with but little alteration, from the admirable Botanical Text Book of my friend Dr. Gray. As to the names of synonyms of genera and species, the Flora of North America has been followed, as far as that work is published,

except where changes were necessary. Beyond the Compositæ, the Flora is not written out, nor have all the plants of the remaining orders been critically studied; so that hereafter changes will probably be made in a few of the species described in these volumes, when they are reëxamined to take their place in the larger work of Dr. GRAY and myself. Remarks on the medicinal and economical uses of the plants, as well as miscellaneous observations, are placed immediately after the detailed descriptions, and not in a separate part of the work. In the tables at the end of the second volume will be found a list of all the natural orders of which we have representatives in the State of New-York, with the number of species belonging to each, and the proportion which they bear to the whole of the flowering plants, as well as to the two grand divisions of these. It will be seen that our most numerous dicotyledonous orders are the RANUNCULACEÆ, which constitute about $\frac{1}{36}$th of the flowering plants; the CRUCIFERÆ, $\frac{1}{45}$th; the LEGUMINOSÆ, $\frac{1}{26}$th; ROSACEÆ, $\frac{1}{25}$th; the UMBELLIFERÆ, $\frac{1}{50}$th; the COMPOSITÆ, $\frac{1}{9}$th; the ERICACEÆ, $\frac{1}{34}$th; the LABIATÆ, $\frac{1}{32}$d; and SCROPHULARIACEÆ, $\frac{1}{30}$th. Of monocotyledonous plants, there are but three large orders, viz. ORCHIDACEÆ, which form about $\frac{1}{39}$th of our flowering plants; CYPERACEÆ, $\frac{1}{8}$th; and GRAMINEÆ, $\frac{1}{12}$th. These proportions will vary but little from the average for the whole Flora of North America.

We may take a more popular view of the vegetation of the State. The whole number of flowering plants has been stated to be about 1450 species. Of these about 1200 are herbaceous, and 150 may be regarded as ornamental. Of woody plants there are 250 species, including about 80 that attain to the stature of trees, many of which are employed in the arts, or are used as fuel. Of plants that are reputed to possess medicinal properties, we have (native and naturalized) 150 species.

The naturalized plants of the State exceed 160 species. Many of them have been introduced from Europe, with grain and other agricultural products; and among them are to be found most of our troublesome weeds. Indeed, throughout the Northern States, almost all the plants that are injurious to the farmer are of foreign origin. Many useful species, likewise, have become so thoroughly naturalized and widely spread, that they every where spring spontaneously from the soil. The grasses of our meadows, parks, lawns and roadsides, are, with few exceptions, naturalized European species. The following are the principal kinds: *Phleum pratense*, *Agrostis polymorpha*, *Anthoxanthum odoratum*, *Holcus lanatus*, *Festuca pratensis*, *Poa annua*, *P. trivialis*, *P. pratensis*, *P. compressa*, *Dactylis glomerata*, and *Lolium pratense*.

According to the instructions received with my appointment, I have prepared an herbarium of the plants found within the limits of the State. The specimens are conveniently arranged for reference in about 50 folio volumes, and are deposited in the Cabinet of Natural History at Albany. Six other sets of the plants have also been prepared, which it is understood are to be presented to public institutions.

It is by no means asserted that all the plants of New-York are described in this Report. The State embraces an area equal to the whole of Great Britain; and notwithstanding the assiduous explorations of numerous botanists for many years, additions are still made,

almost every year, to the Flora of that country. So in the immediate vicinity of New-York, which has probably been more diligently searched than any other region of the same extent in the United States, frequent accessions are made to our list of species, and doubtless many others remain to be detected. A considerable number of plants are extremely local; others disappear, or become extremely scarce for a number of seasons; and some wither away shortly after perfecting their flowers and fruit, so that many species may for a long time escape detection. The parts of the State that have been least explored botanically are the counties which lie on the borders of Pennsylvania, and the region which has been appropriately called the northern wilderness, included in our Fourth District. Portions of Long Island, also, are far from being exhausted. At the end of the work will be found a list of such plants as we expect will be added to our Flora by future observers, with the parts of the State where they will probably be found.

It is with pleasure that I make acknowledgments to the numerous botanical friends who have kindly assisted me by contributing specimens of plants, or information, for this work. The most efficient aid has been rendered by Peter D. Knieskern, M. D., late of Oriskany; Prof. A. Gray, now of Harvard University; H. P. Sartwell, M. D. of Penn Yan; and J. Carey, Esq. of New-York; especially in exploring the western and some of the northern counties. I am also indebted to Mr. Carey for much judicious criticism respecting many obscure plants. Professors Emmons and Hall, of the Geological Department of the Survey, supplied me with some rare plants from their respective districts. Dr. Bradley, of Greece, gave me valuable information respecting the botany of Monroe and Oneida counties. From Professor C. Dewey, I have received friendly assistance in obtaining a knowledge of the plants around Rochester. He has also supplied me with authentic specimens of many species of *Carex*, described by him in Silliman's Journal. Mr. George Vasey, of Oriskany, has sent me some rare plants of Oneida County and other parts of the State. Matthew Stevenson, M. D., kindly allowed me to select what I wished from his herbarium, and in former years freely gave me the results of his numerous herborizations in Washington county, where he resided a long time. To John Wright, M. D., of Troy, I am indebted for plants collected in the neighborhood of that city; and to Allen Wass, M. D., for a list of the plants of Stephentown, Rensselaer County, with their times of flowering and fructification. Edward Tuckerman, Esq., and Jonathan Pearson, M. D., gave me information respecting several rare plants which they found in the neighborhood of Schenectady. Charles Benner, Esq., has given me the results of his botanical excursions among the Catskill Mountains. To Prof. Bailey, of West Point, I am under many obligations for remarks on plants of the Highlands, as well as for specimens, besides assistance in some difficult microscopical investigations. Mr. M. B. Halsted, a zealous young botanist of Newburgh, communicated to me many rare plants of Orange County. Mr. O. R. Willis, and Prof. F. C. Schaffer, have supplied me with specimens illustrating the botany of Long Island. Dr. S. B. Mead, now of Illinois, has kindly sent me remarks on some rare plants collected by him in Westchester County. In exploring the vicinity of New-York, much assistance has been given to me by J. Carey, Esq., and Mr. R. J.

Brownne. Mr. Louis Menard, also, has pointed out to me the localities of various interesting plants. In addition to all these sources, I have availed myself of information received in former years from other botanists who have explored various parts of the State, among whom I would mention the following: Major J. Le Conte, William Cooper, Esq.; Abraham Halsey, Esq.; the late Caspar W. Eddy, M. D., and Dr. Mitchell, who collected plants growing around New-York: and Professor Hadley of Geneva, Prof. Aikin, the late Professor Eaton, Dr. J. Eights, Prof. L. C. Beck, and Dr. J. Crawe, who favored me with many rare and interesting plants, chiefly from the northern and western counties. Very important aid, in examining the botany of the Highlands, has been rendered by J. Barratt, M. D., who spent several years in that region, and most liberally supplied me with specimens and critical observations.

The Survey of the State had been in progress about two and a half years, before a painter was engaged for the botanical department; a delay that was owing to the difficulty of obtaining a competent artist. The original plan with regard to the illustrations, was to have figured all the plants which are useful in medicine and the arts, besides most of the ornamental, new, and rare species, and such as were otherwise possessed of interest. Before the work was completed, however, it was found that this plan could not be carried into effect, both on account of the expense, and the time required to procure all the drawings. Many of the earlier drawings were executed by Miss Agnes Mitchell, the remainder by Miss Elizabeth Pooley, with the exception of a few that were done by Mr. Swinton. These are all very respectable artists, but they were unaccustomed to make dissections of plants. The lithography was executed at the office of Mr. George Endicott. This style of illustration is certainly not so well suited for botanical objects as engraving, but was adopted on account of its great economy. Most of the plates are faithful copies of the original drawings, and are very creditable to the gentleman to whose care this part of the work was committed.

As regards the typography, I am greatly indebted for its accuracy to the compositor and proofreader, Mr. John Patterson, of the State Printing-office in Albany, who has had the principal charge of this part of the labor.

JOHN TORREY.

New-York, December, 1842.

LIST OF THE PRINCIPAL AUTHORS QUOTED IN THIS WORK.

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FLORA

OF THE

STATE OF NEW-YORK.

DIVISION I. FLOWERING or PHÆNOGAMOUS PLANTS.

PLANTS FURNISHED WITH FLOWERS (CONSISTING ESSENTIALLY OF STAMENS AND PISTILS), AND PRODUCING SEEDS.

CLASS I. EXOGENOUS OR DICOTYLEDONOUS PLANTS.

Stem with distinct bark and pith, with an intervening circle of woody fibre; the latter increasing in diameter by the annual deposition of new layers of wood on the outside, forming concentric zones, which are traversed by medullary rays from the pith to the circumference; the bark growing by new layers within. Leaves commonly articulated to the stem; the veins, and those of the floral envelopes branching and reticulated. Sepals and petals most commonly in fours and fives, very rarely in threes. Ovules produced within an ovary, and fertilized by the action of pollen through the medium of a stigma. Embryo with two opposite cotyledons.

SUBCLASS I. POLYPETALOUS EXOGENOUS PLANTS.*

Floral envelopes consisting of both calyx and corolla; the petals distinct.

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* In this subclass are included a few apetalous genera and species, and also some in which the petals are united; while there are excluded from it a small number of plants in which the petals are distinct to the base: for it must be remembered that the subdivisions of our classes are to a considerable degree artificial; and in a natural arrangement, plants must not be separated which agree in important characters, and only differ in minor points.

CONSPECTUS OF THE GROUPS AND ORDERS.

GROUP 1. Ovaries several or numerous (in *Berberidaceæ* solitary), distinct; when in several rows, sometimes cohering together, but not united into a compound pistil. Petals and stamens inserted on the receptacle.

* Stamens or pistils (one or both) numerous.

Order 1. RANUNCULACEÆ. Sepals 3 – 6, usually 5, deciduous. Petals 3 – 15. Anthers extrorse (sometimes none). Ovaries rarely few, distinct.—Herbaceous (rarely shrubby) plants, with acrid watery juice; leaves without stipules.

2. MAGNOLIACEÆ. Sepals 3 – 6, deciduous. Petals 3 to many. Anthers adnate, elongated. Carpels in one or several rows, often more or less cohering.— Trees or shrubs, with large and usually coriaceous punctate leaves; stipules membranaceous. Flowers solitary, generally large and fragrant.

3. ANONACEÆ. Sepals 3. Petals 6. Seeds with ruminated albumen.— Trees or shrubs, with alternate entire leaves destitute of stipules.

** Stamens few. Pistils very few or solitary.

4. MENISPERMACEÆ. Flowers small, usually diœcious or polygamous. Sepals 3 – 12, in 1 – 3 rows. Petals as many as the sepals, or fewer (sometimes none). Carpels usually several; only one or two arriving at maturity, and forming one-seeded berries or drupes.— Climbing or twining frutescent plants, with alternate palmately veined leaves.

5. BERBERIDACEÆ. Flowers perfect. Stamens opposite the petals; cells of the anther usually opening by valves. Ovary solitary, simple.— Shrubs or herbs, usually without stipules.

GROUP 2. Ovaries several, either distinct or united into a compound pistil of several cells. Stamens usually numerous, inserted on the receptacle or torus.— Aquatic herbs.

* Carpels not united into a compound ovary. Leaves centrally peltate.

6. CABOMBACEÆ. Torus small; ovules 2 or several in each carpel, inserted on the dorsal suture.

7. NELUMBIACEÆ. Torus large, turbinate; the ovaries immersed in its disk, each with a solitary ovule.

** Ovary compound; the ovules covering the dissepiments.

8. NYMPHÆACEÆ. Stigmas united in a radiated disk.

*** Ovary compound; the placentæ in the axis.

9. SARRACENIACEÆ. Leaves hollow, pitcher-shaped.

GROUP 3. Ovary compound, with parietal placentæ. Calyx not adherent to the ovary; the stamens and pistils inserted on the receptacle. Leaves not dotted.

* Styles or stigmas united.

† Sepals 2, or rarely 3, deciduous.

10. PAPAVERACEÆ. Petals 4, equal. Stamens numerous (rarely few). Seeds albuminous. Juice milky or colored.

11. FUMARIACEÆ. Petals 4, irregular. Stamens 6, united in 2 parcels. Pod one-celled.

†† Sepals and petals 4, or rarely 6.

12. CRUCIFERÆ. Stamens 6, two of them shorter than the others. Pod 2-celled.

13. CAPPARIDACEÆ. Stamens 6 – 32; (when 6, not tetradynamous.) Pod one-celled. Seeds kidney-shaped.

††† Sepals 5 (rarely 3), persistent.

14. VIOLACEÆ. Petals 5, irregular. Stamens 5.

15. CISTACEÆ. Petals fugacious, regular. Stamens usually numerous.

** Styles or stigmas separate.

16. DROSERACEÆ. Stamens few. Leaves circinnate, usually with glandular hairs.

GROUP 4. Ovary compound, with the placentæ parietal, or 2 – 5-celled from their meeting in the axis; styles distinct, or partly united. Æstivation of the calyx imbricated. Stamens and petals inserted on the receptacle. Seeds with a straight embryo, and little or no albumen.

17. HYPERICACEÆ. Stamens usually numerous and polyadelphous. Leaves dotted.— Shrubs or herbs, without stipules.

18. ELATINACEÆ. Stamens as many or twice as many as the petals. Seeds attached to a persistent central axis.— Small annual weeds, with axillary flowers.

GROUP 5. Ovary compound, one-celled with a free central placenta, or several-celled with the placentæ in the axis. Calyx free from the ovary, or nearly so. Embryo coiled around the outside of the albumen.

19. CARYOPHYLLACEÆ. Sepals and petals equal in number. Stipules none.
20. ILLECEBRACEÆ. Sepals and petals equal in number, the latter often wanting. Stipules scarious.
21. PORTULACACEÆ. Sepals 2 – 3. Petals 5. Stipules none.

GROUP 6. Ovary compound, several-celled, with the placentæ in the axis; or the numerous carpels more or less coherent with each other, or with the central axis. Calyx free from the ovary, with a valvate æstivation. Stamens numerous, monadelphous, free, or somewhat polyadelphous, inserted with the petals into the receptacle or base of the calyx.

22. MALVACEÆ. Stamens monadelphous; anthers one-celled.
23. TILIACEÆ. Stamens distinct, or somewhat polyadelphous; anthers 2-celled.

GROUP 7. Ovary compound, or of several carpels adhering to a central axis, free from the calyx, which is mostly imbricated in æstivation. Stamens as many or twice as many as the petals, inserted on the receptacle, commonly monadelphous at the base. Flowers perfect.

* Flowers regular, or nearly so. Sepals imbricate.

24. LINACEÆ. Ovary of 3 – 5 united carpels, each in the capsule spuriously 2-celled by a false partition from the back; the spurious cells with a single ovule.
25. GERANIACEÆ. Carpels 5, one-seeded; styles cohering to the elongated axis, from which they at length separate by twisting or curling back from below upwards. Seeds without albumen.
26. OXALIDACEÆ. Carpels 5, commonly several-seeded, united in a membranaceous 5-celled capsule. Seeds arillate, albuminous. Trifoliolate.

** Flowers irregular.

27. BALSAMINACEÆ. Sepals 5; the 2 upper ones commonly united into one; the lower one spurred. Petals 4, united in pairs. Stamens 5. Capsule bursting elastically.

*** Flowers regular: Sepals valvate.

28. LIMNANTHACEÆ. Stamens twice as many as the petals. Carpels 3 – 5, distinct, united by their styles, in fruit forming fleshy achenia. Seeds without albumen. Leaves pinnatifid.

GROUP 8. Ovary compound, with from 2 to several cells; or carpels several, and more or less united by their styles. Calyx free. Petals as many as the sepals, or rarely wanting. Stamens as many or twice as many as the sepals, inserted into the receptacle or base of the calyx. Flowers often diœcious or polygamous.

29. ANACARDIACEÆ. Stamens as many as the petals. Ovary one-celled, with 3 styles or stigmas and a single ovule. Leaves not dotted. Albumen none.
30. ZANTHOXYLACEÆ. Carpels 2 or more, separate or united; seeds one or two in each cell or carpel. Seeds albuminous.

GROUP 9. Ovary compound, 2 – 3-lobed, 2 – 3-celled, free from the calyx. Petals (except in *Aceraceæ*) irregular, usually one fewer than the sepals, or sometimes wanting. Stamens definite, distinct, inserted on or around a hypogynous disk. Seeds destitute of albumen.— Mostly trees or shrubs.

31. ACERACEÆ. Flowers regular. Fruit formed of 2 cohering samaræ.
32. HIPPOCASTANACEÆ. Fruit large, roundish, dehiscent, with 1 – 3 very large seeds. Leaves digitate.

GROUP 10. Ovary compound, 2 – 5-celled. Calyx free from or adherent to the base of the ovary. Petals and stamens equal in number to the lobes of the calyx, and inserted into its base or throat, or upon the disk that covers it. Seeds albuminous.— Trees or shrubs. Flowers regular.

* Stamens alternate with the petals.

33. CELASTRACEÆ. Calyx imbricated. Seeds usually arillate.

** Stamens opposite the petals. Calyx valvate.

34. RHAMNACEÆ. Ovary usually coherent with the tube of the calyx, mostly 3-celled, with a single ovule in each cell.
35. VITACEÆ. Calyx free. Ovary mostly 2-celled, with 2 ovules in each cell.

GROUP 11. Ovary compound, 2-celled. Sepals and petals very irregular. Stamens monadelphous, the tube of filaments split on one side; anthers opening by a terminal pore. Seeds albuminous.

36. POLYGALACEÆ. Character the same as that of the group.

GROUP 12. Ovary simple and solitary. Corolla papilionaceous or irregular, sometimes regular. Fruit a legume. Seeds destitute of albumen.

37. LEGUMINOSÆ: Suborder *Papilionaceæ*. Corolla papilionaceous, rarely almost regular; the æstivation imbricated. Stamens inserted with the petals on the base of the calyx.

GROUP 13. Ovaries one or several, simple and distinct, or combined into a compound ovary, with two or more cells, and the placentæ in the axis. Flowers regular. Petals and (distinct) stamens inserted on the calyx. Albumen none.

38. ROSACEÆ. Calyx (except in the suborder *Pomaceæ*) free from the ovaries. Stamens usually numerous. Ovaries with solitary or few ovules. Styles distinct. Leaves alternate, usually with conspicuous stipules, which very often adhere to the petiole.

39. MELASTOMACEÆ. Calyx adhering to the angles of the ovary. Stamens 8 – 12. Anthers elongated, mostly appendaged and opening by pores; in æstivation, inflexed, and contained in tubular spaces formed by the adhesion of the ovary with the nerves of the calyx. Leaves opposite, ribbed, not dotted.

40. LYTHRACEÆ. Calyx tubular, enclosing the 2 – 4-celled ovary, but free from it. Stamens definite; anthers opening longitudinally. Styles united into one. Capsule membranaceous, the dissepiments often obliterated.

41. ONAGRACEÆ. Calyx-tube adherent to the (usually 4-celled) ovary. Petals mostly 4, with as many or twice as many stamens. Styles united; stigmas 4 or united.

GROUP 14. Ovary compound, one-celled, with parietal placentæ. Petals and stamens inserted in the throat of the calyx. Flowers perfect. Calyx adherent to the ovary.

42. CACTACEÆ. Sepals and petals numerous, confounded. Fruit baccate.— Succulent and usually leafless plants.

43. GROSSULACEÆ. Calyx-lobes, petals and stamens 5.— Shrubs, mostly spiny or prickly. Leaves palmately lobed.

GROUP 15. Ovary compound, with the calyx adherent. Fruit a pepo. Corolla usually monopetalous. Stamens di-triadelphous; anthers long, sinuous.

44. CUCURBITACEÆ. Character same as that of the group.

GROUP 16. Ovaries 2 or more, many-ovuled, distinct or more or less united. Calyx free from the ovary, or the tube partly (rarely wholly) adherent to the ovary. Petals and stamens (mostly definite) inserted on the calyx. Seeds numerous, albuminous.

45. CRASSULACEÆ. Calyx free. Ovaries always as many as the sepals, distinct, or rarely partly united, follicular in fruit.

46. SAXIFRAGACEÆ. Calyx often partly adherent. Ovaries mostly 2, usually united below, distinct at the summit.

GROUP 17. Ovary compound, 2- (rarely 3 – 5-) celled, with a single ovule suspended from the summit of each cell. Stamens (with one exception) as many as the petals and lobes of the adherent calyx.

47. HAMAMELACEÆ. Summit of the ovary free. Capsule loculicidal.— Shrubs with alternate stipulate leaves.

48. UMBELLIFERÆ. Styles 2. Carpels 2, separating at maturity. Albumen horny.— Herbs, with the inflorescence in umbels.

49. ARALIACEÆ. Styles 3 to 15 (rarely 2). Carpels mostly baccate, not separable. Albumen fleshy.— Herbs with the inflorescence in umbels.

50. CORNACEÆ. Flowers tetramerous. Styles united into one. Fruit a 2-celled drupe.— Trees or shrubs with opposite leaves. Flowers in cymes.

GROUP 1. *Ovaries several or numerous (in* Berberidaceæ *and a few other cases solitary), distinct; when in several rows, sometimes cohering together, but not united into a compound pistil. Stamens and pistils inserted on the receptacle (hypogynous). Seeds albuminous.*

ORDER I. RANUNCULACEÆ. *Juss.* THE CROWFOOT TRIBE.

Calyx of 3 to 6 (but usually 5) distinct deciduous sepals, which (except in *Clematis*) are imbricated in æstivation. Petals 3 to 15, sometimes irregular or deformed, occasionally absent. Stamens indefinite, distinct (very rarely definite). Ovaries numerous (rarely few or solitary), distinct; ovules solitary or several, anatropous. Carpels either dry achenia, or baccate, or follicular. Seeds solitary or several. Embryo minute, at the base of fleshy or horny albumen.—Herbaceous plants, rarely shrubs, sometimes climbing, with an acrid watery juice. Leaves alternate (opposite in *Clematis*), usually palmately or ternately divided, without stipules.

CONSPECTUS OF THE TRIBES.

Tribe I. ANEMONEÆ. Petals flat or wanting. Anthers mostly extrorse. Achenia numerous, caudate or subulate with the style. Seed suspended.

Tribe II. RANUNCULEÆ. Petals with a small nectariferous scale, pore or gland at the base inside. Anthers extrorse. Achenia numerous. Seed erect, or sometimes suspended.

Tribe III. HELLEBOREÆ: Petals irregular, often bilabiate or tubular, nectariferous; sometimes wanting. Calyx petaloid. Anthers mostly extrorse. Carpels few (rarely solitary), follicular, with several seeds.

Tribe IV. CIMICIFUGEÆ. Sepals petaloid. Petals (dilated sterile filaments or staminodia?) 3 – 6. Anthers introrse or innate. Carpels few, sometimes solitary, rarely numerous, follicular or baccate, and several-seeded; or sometimes indehiscent and one-seeded.

Tribe V. HYDRASTIDEÆ. Sepals 3, petaloid, caducous. Anthers innate. Ovaries numerous, 2-ovuled. Carpels 1 – 2-seeded, baccate, in a globose head.

TRIBE I. *ANEMONEÆ. Torr. & Gr.*

CLEMATIDEÆ AND ANEMONEÆ. *DC.*

Petals flat or wanting. Anthers mostly extrorse. Achenia numerous, caudate, subulate or mucronate with the persistent style. Seed suspended.

1. CLEMATIS. *Linn.; DC. Syst.* 1. p. 31. *VIRGIN'S BOWER.*

[Named from the Greek, *klema*, a shoot or tendril; in allusion to the climbing habit of the genus.]

Involucre none, or resembling a calyx and situated close to the flower. Sepals 4, colored, in æstivation valvate, or sometimes with the edges bent inwards. Petals usually none,

sometimes few, shorter than the sepals. Anthers linear, extrorse. Achenia terminated by long (mostly plumose or hairy) tails.—Perennial, herbaceous, somewhat shrubby plants, mostly sarmentose, with opposite leaves and fibrous roots.

§ 1. CLEMATIS proper. *Involucre none: petals none.*

1. CLEMATIS OCHROLEUCA, *Ait.* (Plate I.) *Silky Virgin's Bower.*

Stem herbaceous, erect, silky-pubescent; leaves undivided, ovate, silky underneath; peduncles solitary, one-flowered, terminal, inclined.—*Ait. Kew.* (ed. 1.) *p.* 260; *Sims, bot. mag. t.* 1175; *Ell. sk.* 2. *p.* 48; *DC. prodr.* 1. *p.* 8; *Torr. & Gr. fl. N. Am.* 1. *p.* 7. C. sericea, *Michx. fl.* 1. *p.* 319; *Pursh, fl.* 2. *p.* 385.

Stem simple or somewhat branched, 1½ – 2 feet high, firmly erect. Leaves 1½ – 3 inches long and 1 – 2 inches in diameter, nearly sessile, rather obtuse, sometimes a little cordate at the base, reticulated, nearly smooth when old. Flowers about an inch in diameter, only one on a plant when the stem is simple, but usually several when branched. Sepals (rarely 5) silky externally, of a dull yellowish color internally, lanceolate, acuminate; the point somewhat recurved. Peduncle of the fruit erect. Carpels with long plumose silky tails; the silk of a yellowish color.

In a small sandy copse about half a mile from the South Ferry, Brooklyn; the only known locality of the plant in the State. It was first detected there by the late Dr. C. W. Eddy, in the year 1806; and though often sought for, was not found again until a few years ago, when it was collected by Mrs. S. Carey. It flowers in May, and ripens its fruit early in July.

2. CLEMATIS VIRGINIANA, *Linn.* *Virginian Virgin's Bower.*

Flowers panicled, diœcious or polygamous; leaves ternate, smooth; leaflets ovate or roundish, acuminate, often more or less cordate, incisely toothed and lobed; carpels with long plumose tails.—*Willd. sp.* 2. *p.* 1290; *Michx. fl.* 2. *p.* 318; *Pursh, fl.* 2. *p.* 384; *Darlingt. fl. Cest. p.* 335; *Torr. & Gr. fl. N. Am.* 1. *p.* 8.

Stem 8 – 15 feet long, climbing over shrubs and bushes, pubescent when young, nearly smooth and somewhat shrubby when old. Leaves on petioles which are 2 – 3 inches long; the leaflets 1 – 3 inches in length and 1 – 2 inches in breadth, petiolulate. Panicles axillary, trichotomously divided, with small leaves at the divisions. Sepals white, elliptical-obovate, longer than the stamens and pistils. Carpels with silky plumose whitish tails, which are about an inch long, and recurved in maturity.

Common in thickets, and along fences and stone walls. Flowers from the latter part of July to August; the fruit mature about the end of September.

This plant is sometimes employed as an emetic, diaphoretic and alterative. *Wood and Bache's U. S. Dispensatory, append.* 1078.

§ 2. ATRAGENE, *DC.* *Involucre none: petals several, minute.*

3. CLEMATIS VERTICILLARIS, *DC.* *Whorl-leaved Virgin's Bower.*

Peduncles one-flowered; leaves verticillate in fours, ternate; leaflets petiolulate, ovate, acuminate, somewhat cordate, entire or sparingly toothed.—*DC. prodr.* 1. *p.* 10; *Hook. fl. Bor.-Am.* 1. *p.* 2; *Torr. & Gr. fl. N. Am.* 1. *p.* 10. Atragene Americana, *Sims, bot. mag. t.* 887; *Pursh, fl.* 2. *p.* 384; *Bigel. fl. Bost. p.* 219.

Stem suffruticose, climbing over rocks and shrubs, nearly smooth. Leaflets about 2 inches long, often entire, but sometimes with a few coarse serratures. Peduncles about the length of the petioles. Flowers cernuous, very large, and of a fine purplish blue color, campanulate. Sepals oblong-lanceolate, acute, sparingly pubescent externally, woolly on the margin. Petals spatulate, passing into stamens. Carpels with long white plumose tails.

Northern and western parts of the State, not uncommon; rare in the valley of the Hudson. Its most southern station is the Fishkill Mountains, near the summit of which it occurs sparingly. Flowers the latter part of April and early in May. A beautiful climber.

2. ANEMONE. *Linn.; Endl. gen.* 4773. *WIND-FLOWER.*

[From the Greek, *anemos*, wind; because many of the species grow in elevated bleak situations.]

Involucre of 3 leaves, remote from the flower; the leaflets variously incised. Sepals 5 to 15, petaloid. Petals none. Achenia mucronate (sometimes with a long plumose tail).—Perennial herbs, with radical (usually divided) leaves. Scapes, when branched, bearing leaf-like involucres at each division. Peduncles one-flowered.

§ 1. ANEMONANTHEA, *DC.* *Carpels without tails: pedicels solitary or in pairs (rarely more), all leafless and one-flowered: leaves of the involucre sessile or petiolate.*

1. ANEMONE NEMOROSA, *Linn.* *Wood Anemone.*

Leaves ternate; leaflets undivided, or with the middle one 3-cleft and the lateral ones 2-parted, incisely toothed, acute, those of the involucre smaller, petioled; sepals 4 – 6 (commonly 5), oval or elliptical.—*Michx. fl.* 1. *p.* 319; *Pursh, fl.* 2. *p.* 387; *Ell. sk.* 2. *p.* 53; *DC. prodr.* 1. *p.* 20; *Hook. fl. Bor.-Am.* 1. *p.* 6; *Torr. & Gr. fl. N. Am.* 1. *p.* 12; *Pritz. revis. Anem. in Linnæa*, 1841, *p.* 650. A. lancifolia, *Pursh, l. c.; DC. l. c.*

var. *quinquefolia:* lateral leaves of the involucre 2-parted to the base.—*DC. l. c.; Bart. fl. N. Am.* 2. *t.* 39. *f.* 2; *Torr. comp. p.* 223; *Torr. & Gr. l. c.* A. quinquefolia, *Linn.*

Rhizoma horizontal, 2 – 3 inches long. Stem or scape 3 – 8 inches high, slender, usually smooth. Radical leaves (often wanting) on long petioles. Leaflets of the involucre resembling those of the radical leaves, an inch or more in length, ciliate-pubescent on the margin. Peduncle slender, 1 – 2 inches long, arising from the centre of the involucre. Flower about an inch in diameter. Sepals rarely only 4 and occasionally as many as 7, resembling petals, white or more or less tinged with purple, especially underneath. Carpels elliptical-ovoid, with a small recurved point.

Moist woods and thickets; very common. Flowers in April and May. *Fr.* June.

2. ANEMONE CYLINDRICA, *Gray.* *Cylindrical-headed Wind-flower.*

Silky-pubescent; leaves ternately divided; lateral segments 2-parted, the intermediate one 2-cleft; lobes linear-lanceolate, with the apex incisely toothed, those of the involucre similar and petioled; peduncles 2 – 6, rarely solitary; sepals 5, obovate, obtuse; carpels densely woolly, in a long cylindrical head, pointed with a short somewhat curved beak.— *Gray in ann. lyc. N. York*, 3. *p.* 221; *Torr. & Gr. fl. N. Am.* 1. *p.* 13; *Pritz. l. c. p.* 668.

Plant 1 – 3 feet high, the stem and peduncles slender and usually of a purplish color. Radical leaves on petioles, which are 2 – 6 inches long; lamina 2 – 3 inches in diameter, the ultimate segments only 2 – 3 lines wide. Peduncles commonly umbellate, very erect; those of the flowers about 6 inches long; of the fruit, twice or more that length. Leaves of the involucre 2 – 3 times the number of the peduncles. Flowers scarcely more than half an inch in diameter, all expanding nearly at the same time. Sepals somewhat coriaceous, hairy externally, pale yellowish green within. Style very short. Heads of carpels an inch or more in length, and one-third of an inch in diameter.

Sandy plains near Oneida lake (*Dr. Gray*). Irondequoit mills, 12 miles east of Rochester (*Dr. Knieskern*). May – June.

This species, which was first characterized by Dr. Gray, has a general resemblance to *A. Virginiana*, but is easily distinguished by its different inflorescence, more slender habit, narrow leaf-segments, and cylindrical head of carpels.

§ 2. ANEMONOSPERMOS, *DC.* *Carpels without tails, compressed; pedicels several from one involucre, one of them leafless and one-flowered, the others bearing a 2-leaved involucel.*

3. ANEMONE VIRGINIANA, *Linn.* *Thimble-weed.*

Leaves ternately divided; segments 3-cleft, acuminate, incisely serrate, those of the involucre and involucels similar, petioled; sepals 5, somewhat coriaceous, elliptical, silky-villous externally; carpels densely woolly, in an ovoid-oblong head, mucronate.— *Michx. fl.* 1. *p.* 320; *Pursh, fl.* 2. *p.* 388; *DC. prodr.* 1. *p.* 21; *Hook. fl. Bor.-Am.* 1. *p.* 7. *t.* 4. *f. B; Darlingt. fl. Cest. p.* 320; *Torr. & Gr. fl. N. Am.* 1. *p.* 13; *Pritz. l. c. p.* 671.

Rhizoma short, and somewhat ligneous. Plant 1 – 3 feet high. Radical leaves on long petioles; leaflets 2 – 4 inches long, and 1 – 1½ inch wide. Peduncles 6 – 12 inches long, several from each involucre. Flowers about three-fourths of an inch in diameter, appearing in succession, so that the flowers and fruit are found on the plant at the same time. Sepals greenish white or ochroleucous, two of them narrower than the others, with a short acuminate point; the others obtuse. Carpels ovoid, with a subulate and somewhat incurved beak, matted together by the whitish dense wool which clothes them; the heads usually about three-fourths of an inch long, and half an inch in diameter.

Dry woods, hill sides, and banks of rivers. *Fl.* Latter part of June. *Fr.* September.

This is one of the numerous plants supposed to possess the power of curing the bite of the rattlesnake.

4. ANEMONE MULTIFIDA, *Poir.* [Plate II.] *Cut-leaved Wind-flower.*

Hairy; leaves ternately divided; segments cuneiform, laciniately 3-cleft, the lobes linear, acute, those of the involucre and involucels similar, on short petioles; sepals 5 – 8, oval, obtuse; head of carpels oval, woolly.— *Poir. dict. suppl.* 1. *p.* 364; *Deless. ic.* 1. *t.* 16; *DC. prodr.* 1. *p.* 21 (excl. *var.* uniflora); *Hook. fl. Bor.-Am.* 1. *p.* 7; *Pritz. l. c. p.* 672.

var. *Hudsoniana:* stem mostly 2-flowered. — *DC. l. c.; Gray, in ann. lyc. N. York,* 3. *p.* 222; *Torr. & Gr. fl. N. Am.* 1. *p.* 13. A. Hudsoniana, and *var.* sanguinea, *Richards. app. Frank. jour. ed.* 2. *p.* 22; *Pritz. l. c.* A. Hudsoniana, *Oakes, in Hovey's hort. mag. May,* 1841. A. sanguinea, *Pursh, in herb. Lamb.*

About a foot high. Radical leaves on petioles which are 2 – 5 inches in length; segments 1 – 2 lines wide. Peduncles of the flower 1 – 3 inches long, of the fruit 6 inches or more; one of them naked, the other with an involucel near the middle. Flowers as large as in *A. Virginiana*, bright purplish red. Sepals usually 5, silky-villous externally. Head of carpels about three fourths of an inch long and half an inch in diameter. Carpels pointed with a slightly curved subulate beak.

The only known locality in our State, of this rare plant, is Watertown, Jefferson county, where it was discovered about 25 years ago by Dr. I. Crawe. It grows on limestone rocks, and, in this place, always occurs with red flowers, which appear in June. Dr. Robbins found it in Vermont with the flowers dull white, and sometimes tinged with rose-color.

DeCandolle, in his *Syst. nat. veg.* (1818), describes two varieties of this plant, one (*Magellanica*) from the Straits of Magellan, collected by Commerson; the other (*Hudsoniana*) from Hudson's Bay. These seem to differ merely in the number of flowers on a plant; a character by no means constant. The former is figured in Delessert's Icones, Vol. 1. t. 16. In t. 17 is a representation of a third variety ("pedicellis solitariis"), from the Straits of Magellan, but not described by DeCandolle in his Systema. It is the *γ. uniflora* of his Prodromus. This differs so much from the ordinary *A. multifida*, that the author of the Icones proposed it as a distinct species, under the name of *A. Commersonia*, which is adopted by Sprengel in his *Systema veg.* In the southern hemisphere the *A. multifida* has even a more extended range than in North America, being found from Conception to the Straits of Magellan.

5. ANEMONE PENNSYLVANICA, *L.* *Pennsylvania Wind-flower.*

Somewhat hairy; leaves 3 – 5-parted; segments oblong, incisely toothed at the apex; involucre and involucels similar, 2-leaved, sessile; sepals 5, obovate; carpels hairy, margined, with a long subulate style which is somewhat recurved at the point; heads of carpels globose.— *Pursh, fl.* 2. *p.* 387; *DC. prodr.* 1. *p.* 121; *Hook. fl. Bor.-Am. I. p.* 8. *t.* 3. *f. B; Torr. & Gr. fl. N. Amer.* 1. *p.* 14; *Pritz. l. c. p.* 667. A. dichotoma, *Linn. amœn. acad.* 1. *p.* 155. A. aconitifolia, *Michx. fl.* 1. *p.* 320.

Plant about a foot and a half high, usually growing in patches. Rhizoma creeping, somewhat ligneous. Petioles 8 – 12 inches long. Leaves 4 – 6 inches or more in diameter. Flowers 1 – 1½ inch in diameter. Sepals white and membranaceous, pubescent externally. Style much longer than the ovary or even the ripe carpels.

Banks of rivers and rather wet meadows; not uncommon. June – August. *Fr.* September. Our plant seems to agree in every essential character with the Siberian *A. dichotoma*.

3. HEPATICA. *Dill.; DC. syst.* 1. *p.* 215; *Endl. gen.* 4774. LIVER-LEAF.

[From the Greek, *hepar*, the liver; the 3-lobed leaves resembling the liver of some animals.]

Involucre very near the flower, and resembling a calyx of three sepals. Sepals (resembling petals) 6 – 9, arranged in two or three rows. Petals none. Carpels without tails.— Leaves radical, 3-lobed. Involucre one-flowered.

1. HEPATICA TRILOBA, *Chaix.* *Common Liver-leaf.*

Leaves broadly cordate, 3 – 5-lobed, the lobes entire.— *DC. prodr.* 1. *p.* 22; *Pursh, fl.* 2. *p.* 391; *Hook. fl. Bor.-Am.* 1. *p.* 8; *Darlingt. fl. Cest. p.* 331; *Torr. & Gr. fl.* 1. *p.* 15. Anemone Hepatica, *Linn.; Michx. fl.* 1. *p.* 319; *Pritz. l. c. p.* 690.

var. 1. *obtusa:* leaves 3-lobed; lobes roundish, obtuse.— *Pursh, l. c.; Torr. & Gr. l. c.* H. Americana, *Ker, in bot. reg. t.* 387; *DC. l. c.*

var. 2. *acuta:* leaves 3 – 5-lobed; lobes acute, spreading.— *Pursh, l. c.; Torr. & Gr. l. c.* H. acutiloba, *DC. l. c.*

Root consisting of coarse fibres. Leaves somewhat coriaceous, unsually remaining through the winter till the following season; the older ones purplish underneath. Petioles and scapes villous, 3 – 6 inches long, the latter appearing before the vernal leaves, sheathed at the base with oblong imbricated stipules. Involucral leaves ovate, villous externally. Sepals oblong, obtuse, usually blue, but sometimes pale purple or white. Carpels oblong, acuminate, hairy.

A very common plant in woods, flowering frequently in the latter part of March, and continuing till May. The acute-leaved variety is more common in the northern and western counties than in the southern part of the State; but I have seen this form, when transplanted into gardens, produce part of its leaves with obtuse lobes. In their native woods the two varieties remain distinct, and seldom grow near each other.

This plant has for a number of years past been employed as a remedy in pulmonary diseases, but it is of very doubtful efficacy. *See Wood & Bache's U. S. Dispens. p.* 347.

TRIBE II. *RANUNCULEÆ. DC.*

Petals with a small nectariferous scale, gland or pore at the base on the inside. Anthers extrorse. Seeds erect, or rarely suspended.

4. RANUNCULUS. *Linn.; DC. syst.* 1. *p.* 231; *Endl. gen.* 4783. CROWFOOT.

[From the Latin, *rana*, a frog; the species often growing in wet places where that reptile abounds.]

Sepals 5, deciduous. Petals 5 (sometimes 10 or more), with a nectariferous scale or pore on the inside of the claw. Stamens numerous (rarely few). Carpels ovate, pointed, compressed, disposed in a cylindrical or roundish head. Seed erect (rarely suspended).—Annual or perennial herbs. Leaves mostly radical; the cauline ones at the base of the branches and peduncles.

§ 1. BATRACHIUM, *DC. Carpels transversely wrinkled: petals white: claws yellow, with a conspicuous nectariferous pore.*

1. RANUNCULUS AQUATILIS, *Linn.* *Water Crowfoot.*

Stem floating; submersed leaves filiformly dissected, emersed ones 3-parted, with cuneiform toothed lobes; petals obovate, longer than the calyx.—*Pursh, fl.* 2. *p.* 395; *DC. prodr.* 1. *p.* 26; *Hook. fl. Bor.-Am.* 1. *p.* 10; *Darlingt. fl. Cest. p.* 327; *Torr. & Gr. fl. N. Am.* 1. *p.* 15.

var. *capillaceus:* leaves petioled, all immersed and filiformly dissected.—*DC. l. c.; Hook. l. c.; Torr. & Gr. l. c.*

Stem filiform, varying in length according to the depth of the water, smooth and branching, producing roots at the lower joints. Leaves dichotomously or trichotomously divided into thread-like segments of about an inch in length. Petioles dilated and sheathing at the base. Peduncles 1 – 2 inches long. Sepals elliptical, smooth. Petals white or ochroleucous. Carpels slightly rugose, with a short beak.

Flowing waters and ponds; rather rare: Singsing, Schenectady, Lake Erie, Chenango County, Penn-Yan, &c. *Fl.* June – August. *Fr.* August – September.

§ 2. HECATONIA, *DC. Carpels smooth (not wrinkled), ovate or roundish, in small globose heads: root fibrous: flowers yellow.*

* *Leaves all undivided.*

2. RANUNCULUS FLAMMULA, *Linn.* *Spearwort.*

Leaves smooth, linear-lanceolate or ovate-lanceolate, often toothed, the lower ones petiolate, upper ones nearly sessile; stem declined, rooting at the lower joints; peduncles opposite the leaves; carpels with a subulate beak; petals longer than the calyx.—*DC. prodr.* 1. *p.* 32; *Pursh, fl.* 2. *p.* 391; *Darlingt. fl. Cest. p.* 327; *Torr. & Gr. fl. N. Am.* 1. *p.* 16.

Whole plant smooth, and of a yellowish green color. Stem 1 – 2 feet long, somewhat branching: leaves 3 – 6 inches long, and from one quarter to nearly an inch in breadth; upper ones acute at each end; lower ones more or less obtuse at the base. Peduncles 1 – 2 inches long. Flowers nearly half an inch in diameter. Carpels in a globose head, beaked.

A common plant in low wet grounds, ditches, and about springs, flowering from July to August. Fruit ripe in November. It is one of the most acrid of the genus, and is sometimes employed in domestic practice for blistering the skin. The distilled water is used as an emetic. ***See Wood & Bache's U. S. Dispens. p. 543.***

3. RANUNCULUS REPTANS, *Linn.* *Least Spearwort.*

Leaves linear or lanceolate-linear, acute at each end, smooth, entire; stem creeping (rooting at the joints); carpels dotted, with a minute blunt point.—*DC. prodr.* 1. *p.* 32.

var. *filiformis, DC.*: stem filiform, creeping extensively; leaves linear; flowers small.—*Torr. & Gr. fl. N. Am.* 1. *p.* 16. R. filiformis, *Michx. fl.* 1. *p.* 320; *Pursh, fl.* 2. *p.* 392; *Bart. fl. Am. Sept.* 2. *p.* 101. *t.* 70, *f.* 2; *Bigel. fl. Bost. p.* 224.

Stems numerous, 6 – 12 inches or more in length, producing leaves and roots at the joints. Leaves scarcely one line in breadth, but occasionally broader and somewhat lanceolate. Flowers 3 – 4 lines in diameter. Petals obovate. Carpels roundish, ovoid, the beak very short and oblique.

Sandy banks of rivers and lakes; rather rare. It is abundant on the shores of the Hudson, about Albany and Troy; on Lake Erie, near Sackett's Harbor; Chenango County (*Dr. Knieskern*), and in a few other places. Flowering from July to August.

4. RANUNCULUS PUSILLUS, *Poir.* *Small-flowered Crowfoot.*

Stem usually erect; leaves all petiolate, the lower ones ovate and subcordate, entire or sparingly toothed, upper ones linear-lanceolate; petals usually 3 (sometimes 1 – 5), as long as the calyx; carpels ovate, smooth, with a minute blunt point.—*Poir. dict.* 6. *p.* 99; *Pursh, fl.* 2. *p.* 312; *Ell. sk.* 2. *p.* 58; *DC. prodr.* 1. *p.* 32; *Deless. ic.* 1. *t.* 28; *Darlingt. fl. Cest. p.* 328; *Torr. & Gr. fl. N. Amer.* 1. *p.* 17.

var. *muticus*: carpels without any beak.—*Torr. & Gr. l. c.*

A dwarf species, the only locality of which, in this State, so far as I can learn, is on the Island of New-York. It occurs sparingly in the low grounds of Bloomingdale, about five miles from the City Hall; flowering in July. When it throws up numerous stems, it is sometimes decumbent.

5. RANUNCULUS CYMBALARIA, *Pursh.* *Sea Crowfoot.*

Stoloniferous; leaves cordate, ovate or reniform, petioled, obtuse, coarsely crenate; scape

1 – 3-flowered; petals spatulate, longer than the calyx. — *Pursh, fl.* 2, *p.* 392; *Bigel. fl. Bost. p.* 225; *Hook. fl. Bor.-Am.* 1. *p.* 11; *Torr. & Gr. fl. N. Am.* 1. *p.* 19. R. Cymbalaria, *β.* Americana, *DC. prodr.* 1. *p.* 33.

Scapes 2 – 6 inches high, with one or two minute linear leaves. Stolons extensively creeping. Radical leaves smooth, somewhat fleshy, about half an inch broad; petioles 2 – 4 inches long. Flowers about a third of an inch in diameter. Sepals oval, concave. Petals 5 – 8. Carpels ovate, acute, compressed, with several elevated ribs, disposed in dense oblong heads.

Salt marshes on the seacoast of Long Island; also about the salt works of Salina and Syracuse. July – September.

** *Leaves more or less divided.*

6. RANUNCULUS ABORTIVUS, *Linn.* *Kidney-leaved Crowfoot.*

Smooth; radical leaves on long petioles, reniform or broadly ovate and subcordate, crenate, sometimes 3-cleft; cauline ones 3 – 5-parted, with linear-oblong, nearly entire segments; sepals reflexed, longer than the petals; head of carpels globose or ovate. — *Pursh, fl.* 2. *p.* 392; *DC. prodr.* 1. *p.* 34; *Hook. fl. Bor.-Am.* 1. *p.* 14; *Darlingt. fl. Cest. p.* 328; *Torr. & Gr. fl. N. Amer.* 1. *p.* 19.

Plant very smooth, shining. Root consisting of thick tufted fibres. Stem simple or branching, about a foot high. Radical leaves 1 – 2 inches in diameter. Flowers 2 – 3 lines in diameter. Sepals ovate, obtuse, yellowish. Petals pale yellow, with a conspicuous truncate and pouch-like scale. Carpels roundish, margined, pointed, with a very short straight style, smooth and shining.

A common species in rocky woods, meadows, etc.; beginning to flower towards the end of April, and continuing through May. *Fr.* June – July.

7. RANUNCULUS SCELERATUS, *Linn.* *Celery-leaved Crowfoot.*

Smooth; leaves petioled, 3-parted, radical ones with the divisions 3-lobed and obtusely incised, the upper cauline ones with oblong-linear nearly entire lobes; sepals reflexed, about equal to the petals; carpels minute, scarcely mucronate, disposed in oblong cylindrical heads. — *Pursh, fl.* 2. *p.* 393; *DC. prodr.* 1. *p.* 34; *Ell. sk.* 2. *p.* 59; *Hook. fl. Bor.-Am.* 1. *p.* 15; *Darlingt. fl. Cest. p.* 339; *Torr. & Gr. fl. N. Amer.* 1. *p.* 19.

Plant pale green. Stem thick and rather succulent, fistulous, very leafy, branching. Leaves 1 – 3 inches long, with spreading narrow segments: petioles dilated and sheathing at the base. Flowers small. Petals pale yellow, with a roundish nectariferous pore on the claw. Carpels a hundred or more, forming a head which is sometimes an inch in length.

A common plant in low grounds and ditches; flowering from May to August. A native also of Europe.

8. RANUNCULUS PURSHII, *Richards.* *Pursh's Crowfoot.*

Submerged leaves divided into filiform flat segments, the emersed ones reniform, 3 – 5-parted; lobes variously divided; petals twice as long as the reflexed sepals; carpels in globose heads, smooth, with a short straight ensiform style. — *Hook. fl. Bor.-Am.* 1. *p.* 15; *Torr. & Gr. fl. N. Am.* 1. *p.* 19.

var. 1: leaves all filiformly dissected; flowers large; stem fistulous.— *Hook. l. c.; Torr. & Gr. l. c.* R. multifidus, *Pursh, fl.* 2. *p.* 736; *DC. prodr.* 1. *p.* 34. R. fluviatilis, *Bigel. fl. Bost. ed.* 1. *p.* 139. R. delphinifolius, *Torr. in Eat. man. ed.* 3 (1822), *p.* 424. R. lacustris, *Beck & Tracy, in Eat. man. l. c. and in trans. Alb. inst.* 1. *p.* 148 *cum icon.*

var. 2: submersed leaves filiformly dissected, floating ones reniform, palmately many-cleft. —*Hook. l. c. t.* 7. *B. f.* 7; *Torr. & Gr. l. c.*

var. 3: creeping; lower leaves many-cleft, with linear segments; upper ones reniform, palmately many-cleft.— *Hook. l. c. t.* 7. *B. f.* 2; *Torr. & Gr. l. c.*

Stem in the floating varieties from one to several feet long, according to the depth of the water, much branched; in the creeping form shorter, and often partly erect. Circumscription of the leaves roundish; segments of the submerged ones 1 – 2 inches long. Flowers in var. 1, as large as in *R. acris*, in the others smaller. Sepals ovate, colored, smooth. Petals bright yellow, obovate, one-third longer than the sepals.

Sluggish streams, and also in still water. Common in the northern and western parts of the State. The first and third varieties occur in ponds on Long Island two or three miles from Brooklyn. May – July. A well marked species.

9. RANUNCULUS ACRIS, *Linn.* *Tall Crowfoot. Butter Cups.*

Leaves pubescent or somewhat glabrous, 3 – 5-parted, with the segments deeply 3-cleft; lobes lanceolate, acute, the uppermost linear; stem many-flowered; peduncles terete; calyx spreading, villous; carpels roundish, compressed, pointed with a short recurved beak.—*Pursh. fl.* 2. *p.* 394; *DC. prodr.* 1. *p.* 36; *Bigel. fl. Bost. ed.* 2. *p.* 226; *Hook. fl. Bor.-Am.* 1. *p.* 18; *Torr. & Gr. fl. N. Am.* 1. *p.* 21.

Stem 1 – 2 feet high, the lower part and the petioles usually clothed with spreading hairs, but sometimes nearly smooth. Peduncles 1 – 3 inches long. Flowers about an inch in diameter, bright yellow.

Meadows and pastures, not uncommon; flowering from June to November. The roots and leaves are sometimes bruised and applied to the skin, as a rubefacient, and also to produce blistering. It is a naturalized plant of European origin.

10. RANUNCULUS REPENS, *Linn.* *Creeping Crowfoot.*

Stems throwing off from the base long prostrate or creeping branches; leaves trifoliolate; leaflets cuneiform, 3-lobed, incisely toothed, the middle (and generally the lateral ones also) petiolulate; peduncles sulcate; calyx spreading; carpels with a broad short rather straight

point.— *DC. prodr.* 1. *p.* 38; *Pursh, fl.* 2. *p.* 394; *Darlingt. fl. Cest. p.* 329; *Torr. & Gr. fl. N. Am.* 1. *p.* 21. R. intermedius, *Eat. man. ed.* 2. *p.* 329. R. Clintonii, *Beck, fl.* 1. *p.* 7. R. nitidus, *Muhl. cat. ed.* 2. *p.* 56; *Ell. sk.* 2. *p.* 60; *Hook. fl. Bor.-Am.* 1. *p.* 20. (excl. syn. *DC.*)

var. 2. *linearilobus* (*DC.*): prostrate; stems very long, floriferous; lobes of the leaves very narrow.— *Torr. & Gr. l. c.*

var. 3. *Marilandicus* (*Torr. & Gr.*): stem and petioles densely hirsute with very soft hairs; leaflets distinctly petiolulate.— R. Marilandicus, *Poir. dict.* 6. *p.* 126; *DC. syst.* 1. *p.* 291; *Pursh, l. c.*

Stems at first, especially in var. 3, and when growing in woods, only a few inches high and wholly erect; but later in the season, and in rich soils, at length 1 – 4 feet long and mostly prostrate, often rooting at the joints. Sometimes the whole plant is smooth, but more commonly the stem and petioles are hairy. Peduncles 1 – 3 inches long. Flowers about two-thirds as large as in *R. acris*, bright shining yellow. Carpels in a globose head, margined, somewhat orbicular, punctate; the beak usually straight, but sometimes a little curved.

Low grounds, particularly along rivers: var. 3, in woods. A variable species, presenting very different appearances according to the age of the plant, soil, etc. Early in May – Aug.

11. Ranunculus fascicularis, *Muhl.* *Bunch-rooted Crowfoot.*

Plant clothed with an appressed silky pubescence; stem short, erect or spreading; leaves pinnately divided; segments oblong-obovate or cuneiform, pinnatifidly lobed; calyx spreading, villous, half the length of the petals; heads subglobose; carpels orbicular, tumid, slightly margined; style subulate, slender, a little curved, nearly as long as the carpel.— *Muhl. cat. p.* 56; *DC. prodr.* 1. *p.* 40; *Bigel. fl. Bost. ed.* 2. *p.* 226; *Hook. fl. Bor.-Am.* 1. *p.* 20. *t.* 8. *f. A.*; *Darlingt. fl. Cest. p.* 329; *Torr. & Gr. fl. N. Am.* 1. *p.* 24.

Root composed of thick, somewhat fleshy, fasciculate fibres. Stem 6 – 12 inches high, erect or oblique. Leaves variously divided; of the radical ones, the middle lobe is always distinctly petioled, or separated from the lower segments by a portion of elongated naked midrib; ultimate divisions about 2 lines wide. Flowers nearly as large as in *R. acris*. Petals obovate or oblong, bright or pale yellow; scale of the claw cuneate-obovate. Carpels minutely punctate, abruptly pointed with the slender style.

Rocky woods and sunny hill sides, particularly along rivers. Common in the northern counties, but rather rare on the Hudson. *Fl.* April – May. *Fr.* June.

12. Ranunculus Pennsylvanicus, *Linn.* *Pennsylvanian Crowfoot.*

Stem and petioles hispid with spreading hairs; leaves ternate, villous, with the hairs appressed; lower ones on long petioles, the leaflets petiolulate, lobes lanceolate, incised; calyx reflexed, longer than the small petals; heads oblong or somewhat cylindrical; carpels broadly

ovate, pointed with a very short oblique style.—*Ell. sk.* 2. *p.* 63; *Bigel. fl. Bost. ed.* 2. *p.* 227; *DC. prodr.* 1. *p.* 40; *Hook. fl. Bor.-Am.* 1. *p.* 19; *Torr. & Gr. fl. N. Am.* 1. *p.* 22. R. Canadensis, *Jacq. ic. rar.* 1. *t.* 165. R. hispidus, *Pursh, fl.* 2. *p.* 395.

Stem 1 – 2 feet high, stout, usually much branched, erect, clothed with stiff horizontal hairs. Leaves 2 – 4 inches in diameter; the lower ones with petioles 3 – 6 inches long; petioles of the leaflets often an inch or more in length. Penducles obscurely grooved. Flowers about three lines in diameter. Sepals ovate, rather obtuse, reflexed. Petals pale yellow, obovate, usually shorter than the calyx and ovoid compact head of pistils; scale broadly cuneate, emarginate. Carpels viscid, very numerous.

Banks of rivers, in damp soils, chiefly on the Hudson River and in the northern counties. *Fl.* latter part of July – August. *Fr.* September.

13. RANUNCULUS RECURVATUS, *Poir.* *Sanicle-leaved Crowfoot.*

Erect; stem and petioles clothed with spreading stiffish hairs; leaves 3-parted, with appressed hairs, or nearly smooth; segments broadly oval, incisely toothed, the lateral ones 2-lobed; calyx reflexed; petals narrowly oblong, shorter than the sepals; heads ovoid-globose; carpels roundish, with a sharp hooked style.— *Poir. dict.* 6. *p.* 123; *Pursh, fl.* 2. *p.* 394; *Deless. ic.* 1. *t.* 41; *DC. prodr.* 1. *p.* 39; *Ell. sk.* 2. *p.* 63; *Hook. fl. Bor.-Am.* 1. *p.* 20 (in part); *Darlingt. fl. Cest. p.* 329; *Torr. & Gr. fl. N. Am.* 1. *p.* 22.

Root coarsely fibrous. Stem about a foot high. Leaves 2 – 3 inches in diameter, with a pentagonal outline, petiolate. Flowers small, on short peduncles. Sepals oblong, hairy. Petals pale yellow, often only half the length of the sepals, with a conspicuous cuneate scale at the base. Carpels much compressed, margined; the beak very slender, about half the length of the carpel.

Shady woods, in rich soil; common. Flowers from May to June.

14. RANUNCULUS BULBOSUS, *Linn.* *Butter-cups.*

Stem erect, hairy, bulbous at the neck; radical leaves cut into 3 – 5 petiolated leaflets, which are 3 – 5-cleft and incisely toothed; peduncles sulcate; calyx reflexed, shorter than the sepals; carpels ovoid, with a short acute recurved beak. — *Michx. fl.* 1. *p.* 321; *Pursh, fl.* 2. *p.* 392; *Darlingt. fl. Cest. p.* 331; *Torr. & Gr. fl. N. Am.* 1. *p.* 24.

Root consisting of thick fibres. Stem about a foot high, clothed with appressed hairs, the tuber at the base about the size of a filbert. Leaves hairy, deeply parted and variously cut; the segments short, obtusely incised and lobed. Peduncles 1 – 3 inches long. Sepals externally. Petals usually 5, sometimes more, deep yellow and shining. Carpels in a globose head.

Fields, pastures and road sides. May – July. A weed of European origin. It is one of the most acrid of the genus.

TRIBE III. *HELLEBOREÆ. DC.*

Petals irregular, often bilabiate or tubular, nectariferous, sometimes wanting. Calyx petaloid. Anthers mostly extrorse. Carpels few (rarely solitary), follicular, with several seeds.

CONSPECTUS OF THE GENERA.

5. CALTHA. Sepals 6 – 9. Petals none.
6. TROLLIUS. Sepals 5 – 15. Petals 5 – 20, small and one-lipped.
7. COPTIS. Sepals 5 – 6, deciduous. Petals 5 – 6, with claws. Follicles stipitate, membranaceous.
8. HELLEBORUS. Sepals 5, persistent. Petals 8 – 10, small, tubular. Follicles sessile, coriaceous.
9. AQUILEGIA. Sepals 5, deciduous. Petals 5, each with a long spur.
10. DELPHINIUM. Sepals 5, irregular, one of them spurred. Petals 4, very irregular, two of them with spurs which are concealed in the spur of the calyx.
11. ACONITUM. Sepals 5, irregular, one of them large and vaulted. Petals 5, very irregular, the two upper ones on long claws.

5. CALTHA. *Linn.; DC. syst.* 1. *p.* 306; *Endl. gen.* 4786. *MARSH MARIGOLD.*

[From the Greek, *kalathos*, a cup; in allusion to the form of the flowers.]

Calyx of 5 – 10 petaloid sepals. Petals none. Stamens numerous. Ovaries 5 – 10 – 16. Follicles compressed, spreading, many-seeded.— Perennial, very smooth herbs. Leaves cordate or reniform.

1. CALTHA PALUSTRIS, *Linn.* *Common Marsh Marigold.*

Stem erect; leaves orbiculate-cordate or reniform, obtusely crenate, or nearly entire, the lobes rounded; sepals usually 5 (sometimes 6), broadly oval.— *Michx. fl.* 1. *p.* 234; *Pursh, fl.* 2. *p.* 390; *DC. prodr.* 1. *p.* 44; *Darlingt. fl. Cest. p.* 336; *Torr. & Gr. fl. N. Am.* 1. *p.* 26.

var. *integerrima:* radical leaves wholly entire; floral ones sessile, obscurely crenate; petals obovate.—*Torr. & Gr. l. c.* C. integerrima, *Pursh, l. c.; DC. prodr.* 1. *p.* 45.

Root consisting of coarse fasciculate fibres. Stem 6 – 10 inches high, erect, rather thick and succulent, corymbosely or dichotomously branched above. Radical leaves 2 – 4 inches broad, on petioles 3 – 8 inches or more in length, sometimes acutely toothed. Flowers few, somewhat corymbose, an inch or more in diameter, bright yellow. Sepals about twice as long as the stamens. Carpels 8 – 10, oblong, somewhat recurved, mucronate with the style. Seeds oblong, dark purple, horizontally arranged in a double series.

Common in swamps. *Var.* integerrima, near Peekskill (*Dr. Crandell*). *Fl.* April – May. In its early spring state, the plant is used as a potherb, or one of the numerous articles called "greens" in the United States. A syrup prepared from it is a popular remedy for coughs.

6. TROLLIUS. *Linn.*; *DC. syst.* 1. *p.* 311; *Endl. gen.* 4787. GLOBE-FLOWER.

[Said to be derived from the German word *trolla*, or *trolen*, signifying a ball or globe.]

Calyx of 5 – 10 – 15 deciduous petaloid sepals. Petals 5 – 25, small, 1-lipped, tubular at the base. Stamens and ovaries numerous. Follicles numerous, sessile, somewhat cylindrical, many-seeded.— Perennial glabrous herbs having the appearance of *Ranunculus*, with fibrous-fasciculate roots, and palmately divided leaves; the segments many cleft. Flowers yellow.

1. TROLLIUS LAXUS, *Salisb.* (Plate III.) *American Globe-flower.*

Sepals 5 – 6, spreading; petals 15 – 25, shorter than the stamens.—*Salisb. in Linn. trans.* 8. *p.* 303; *Pursh, fl.* 2. *p.* 391; *Bot. mag. t.* 1988; *Lodd. bot. cab. t.* 56; *Gray in ann. lyc. N. York*, 3. *p.* 222; *Torr. & Gr. fl. N. Am.* 1. *p.* 28. T. Americanus, *Muhl. cat. p.* 56; *DC. prod.* 1. *p.* 46; *Hook. fl. Bor.-Am.* 1. *p.* 23.

Plant 1 – 2 feet high, erect. Radical leaves on petioles 6 – 8 inches long; upper cauline ones sessile. Flower about twice as large as in *Ranunculus acris*. Sepals broadly obovate, ochroleucous, with a tinge of green underneath. Petals scarcely half the length of the stamens, deep orange yellow. Stamens about half the length of the petals; anthers linear-oblong. Carpels 8 – 15. Seed oblong, horizontal, somewhat angular.

Sphagnous swamps near Utica (*Dr. Gray*). Jamestown, Chautauque county (*Miss C. Hazeltine*). Wet woods, Mount Hope, near Rochester (*Prof. Dewey*). *Fl.* Early in May.— A rare and handsome plant, looking at a little distance like a large-flowered Ranunculus.

7. COPTIS. *Salisb. in Linn. trans.* 8. *p.* 305; *Endl. gen.* 4792. GOLDTHREAD.

[From the Greek, *kopto*, to cut; in allusion to the numerous divisions of the leaves.]

Calyx of 5 – 6 petaloid deciduous sepals. Petals 4 – 6. Stamens 15 – 25. Follicles 3 – 10, on long stalks and somewhat stellately diverging, membranaceous, ovate-oblong, pointed with the style, 4 – 8-seeded.— Herbs, with radical somewhat coriaceous divided leaves and very slender creeping rhizomas.

§. CHRYSA, *Raf.* *Petals very small, cucullate-obconic.*

1. COPTIS TRIFOLIA, *Salisb.* *Common Goldthread.*

Leaves trifoliolate; leaflets cuneiform-obovate, crenately and mucronately toothed, obscurely 3-lobed; scape 1-flowered.— *Salisb. l. c.*; *Pursh, fl.* 2. *p.* 390; *Bigel. med. bot.* 1. *t.* 5; *DC. prodr.* 1. *p.* 47; *Hook. fl. Bor.-Am.* 1. *p.* 23; *Torr. & Gr. fl. N. Am.* 1. *p.* 28. Helleborus trifolius, *Linn.*; *Michx. fl.* 1. *p.* 325. Chrysa borealis, *Raf. in Desv. jour. bot.* 2. *p.* 170.

Rhizoma horizontal, throwing off numerous long and slender bright yellow fibres of an intensely bitter taste. Leaves evergreen, on long petioles, very smooth and shining, strongly veined; leaflets about an inch long. Scape slender, but somewhat rigid and wiry, 3 – 6 inches long. Flowers about two-thirds of an inch in diameter. Sepals 5 – 7 oblong, obtuse, white, sometimes purplish underneath. Petals much shorter than the sepals, yellow at the base. Carpels acuminate with the persistent curved style. Seeds oblong, smooth and shining; raphe indistinct.

Common in sphagnous swamps, and in damp shady woods around the roots of trees; flowering in May, and ripening its fruit about the end of June. The root is a pure bitter, like that of *Quassia*, without any astringency. It is extensively employed as a tonic, both in domestic practice, and as an ordinary article of the materia medica.

8. HELLEBORUS. *Adans.; Endl. gen.* 4789. *HELLEBORE.*

[From the Greek, *helein*, to cause death, and *bora*, food; the plant being poisonous.]

Sepals 5, persistent, mostly greenish. Petals 8 – 10, very short, tubular, 2-lipped. Stamens numerous. Stigma orbicular. Follicles 3 – 10, slightly cohering at the base, coriaceous, many-seeded. Seeds elliptical, fungous at the hilum.— Perennial herbs (natives of Europe and Asia). Leaves coriaceous, the radical ones palmately or pedately divided. Flowers large, nodding.

1. HELLEBORUS VIRIDIS, *Linn.* *Green Hellebore.*

Radical leaves glabrous, pedately divided; the cauline few, nearly sessile, palmately parted; peduncles often geminate; sepals roundish-ovate, green (*DC.*). — *Jacq. fl. Austr. t.* 106; *Eng. bot. t.* 200; *Muhl. cat. p.* 56; *DC. prodr.* 1. *p.* 47; *Torr. & Gr. fl. N. Am.* 1. *p.* 659 (suppl.).

Plant about a foot high, smooth, usually a little branched above. Rhizoma rather thick and woody. Radical leaves on long petioles, 5 – 8 inches wide, divided into 7 – 15 lanceolate serrated lobes. Flowers an inch or more in diameter. Petals shorter than the stamens.

On the plains near Jamaica, and in a wood near Brooklyn, Long Island (*Mr. A. Halsey*, and *Mr. R. J. Brownne*). April. A native of Europe, but fully naturalized in these localities.

9. AQUILEGIA. *Linn.; Endl. gen.* 4795. *COLUMBINE.*

[Latin, *aquila*, an eagle; the spurs of the petals having some resemblance to eagles' claws.]

Sepals 5, deciduous, colored. Petals 5, somewhat bilabiate; the outer lip large, flat and spreading; inner one very small, produced at the base into as many hollow spurs or horns, which descend between the sepals. Follicles 5, erect, many-seeded, pointed with the style.— Perennial herbs, with bi- or triternate leaves. Flowers terminal, scattered.

1. AQUILEGIA CANADENSIS, *Linn.* *Canadian Columbine.*

Spur straight, larger than the limb; sepals ovate or oblong, a little larger than the petals; stamens and styles exserted.—*Michx. fl.* 1. *p.* 36; *DC. prodr.* 1. *p.* 50; *Bot. mag. t.* 246; *Bart. fl. Amer. Sept.* 1. *t.* 36; *Hook. fl. Bor.-Amer.* 1. *p.* 24 (in part); *Darlingt. fl. Cest. p.* 320; *Torr. & Gr. fl. N. Am.* 1. *p.* 29.

Root fusiform. Stem 12 – 18 inches high, paniculately branched, smooth. Leaves on long petioles, glaucous underneath, commonly biternate; leaflets cuneiform, crenately lobed. Flowers on slender pedicels, pendulous, scarlet externally, yellowish within. Spurs about an inch long, swollen, slightly curved and callous at the extremity. Ovaries pubescent: styles a little longer than the stamens.

Rocky hill-sides; flowering from the end of April to July.

10. DELPHINIUM. *Linn.; Endl. gen.* 4796. *LARKSPUR.*

[From the Greek, *delphin*, a dolphin; from the shape of the upper sepal.]

Sepals 5, deciduous, petaloid, irregular, the upper one produced into a spur at the base. Petals 4, irregular; the two superior ones furnished with a spur-like appendage at the base, inclosed in the spur of the calyx. Ovaries 1 – 5, mostly 3. Follicles many-seeded.—Annual or perennial herbs with erect branched stems. Leaves petiolate, palmately divided. Flowers in terminal racemes, commonly blue.

§. CONSOLIDA, *DC.* *Ovary solitary: petals united into one: inner spur of one piece.—Annual.*

1. DELPHINIUM CONSOLIDA, *Linn.* *Common Larkspur.*

Stem erect, smoothish, divaricately branched; flowers few in a loose raceme; pedicels longer than the bracts; carpels smooth.—*DC. prodr.* 1. *p.* 51; *Pursh, fl.* 2. *p.* 372; *Torr. & Gr. fl. N. Am.* 1. *p.* 30.

Annual. About a foot high. Leaves divaricately divided into numerous linear segments. Flowers numerous, in a long raceme, bright blue. Pedicels about an inch long.

Fields and road sides: naturalized in a few places. July – August.

12. ACONITUM. *Linn.*; *Endl. gen.* 4797. *WOLFSBANE.*

[From *Acone*, a town in Bithynia.]

Sepals 5, petaloid, irregular, deciduous; the upper one (galea) large, vaulted; lateral ones roundish; the 2 lower oblong. Petals 5; the 3 lower ones minute, often converted into stamens; the 2 upper on long claws, expanded into a sac or short spur at the summit, concealed under the galea. Follicles 3 – 5, many-seeded.— Perennial herbs. Leaves palmately divided.

The species of this genus contain a powerful narcotic principle called *Aconitine*.

1. ACONITUM UNCINATUM, *Linn.* *American Moonkshood.*

Panicle rather loosely flowered, with diverging branches; galea obtusely conic, compressed, with an obtuse beak; spur thick, inclined; leaves deeply 3-lobed.—*Michx. fl.* 1. *p.* 315; *Bot. mag. t.* 1119; *DC. prodr.* 1. *p.* 60; *Ell. sk.* 2. *p.* 20; *Torr. & Gr. fl. N. Am.* 1. *p.* 34.

Root tuberous. Stem flexuous, slender, 2 – 5 feet long, often reclining. Leaves 3 – 5 inches in diameter, 3 – 5-parted, the segments laciniately and mucronately toothed. Flowers as large as in *A. Napellus*, bright blue. Ovaries 3 – 5, villous.

In wet places on mountains, Chenango county (*Major J. LeConte: v. s. in herb. LeConte*). No other botanist has found this plant within the limits of our State. Dr. Knieskern lately searched for it in Chenango county, but without success.

TRIBE IV. *CIMICIFUGEÆ. Torr. & Gr.*

Sepals petaloid. Petals (dilated sterile filaments or staminodia?) 3 - 6. Anthers introrse or innate. Carpels few, sometimes solitary, rarely numerous, follicular or baccate, sometimes indehiscent and one-seeded. Flowers by abortion occasionally diclinous.

12. ACTÆA. *Linn.; Endl. gen.* 4799. *BANEBERRY.*

[Name from the Greek, *akte*, elder; which this genus resembles in its foliage.]

Sepals 4 – 5. Petals (or staminodia) 4 – 8, spatulate. Stamens numerous: anthers introrse. Stigma capitate, sessile. Carpels solitary, baccate, many-seeded. Seeds compressed, smooth, horizontal.— Perennial herbs. Leaves bi-triternately divided; segments incisely serrate. Flowers in simple racemes, white.

1. ACTÆA RUBRA, *Bigel.* *White Cohosh.*

Raceme ovate; pedicels longer than the flower, scarcely any thicker in fruit; petals rhombic-ovate, acute, shorter than the stamens; fruit nearly ovoid, (red.)— *Bigel. fl. Bost. p.* 211; *Hook. fl. Bor.-Am.* 1. *p.* 27; *Torr. & Gr. fl. N. Am.* 1. *p.* 35. A. Americana, *var.* rubra, *Pursh, fl.* 2. *p.* 366. A. brachypetala, *var.* rubra, *DC. prodr.* 1. *p.* 65. A. spicata, *var.* rubra, *Michx. fl.* 1. *p.* 308.

Stem 1½ – 2 feet high, slender, smooth. Leaves ternately decompound; leaflets ovate, acuminate, 1 – 2 inches long, unequally and incisely serrate; the terminal one often 3-cleft. Raceme 20 – 40-flowered, broadly ovate or hemispherical. Sepals 4, greenish, ovate. Petals sometimes 8 – 10, minute. Berries bright cherry red, the size of a large pea, about 16-seeded; the pedicels half an inch long, and not one-fourth as thick as the peduncle, at length spreading horizontally.

Rocky woods; not rare. *Fl.* May. *Fr.* August – September.

2. ACTÆA ALBA, *Bigel.* *White Cohosh.*

Raceme oblong; pedicels as long as the flower, much thickened in fruit; petals oblong, truncate at the apex, shorter than the stamens; fruit roundish-ovoid, (white.)—*Bigel. fl. Bost. p.* 211; *Hook. fl. Bor.-Am.* 1. *p.* 27; *Torr. & Gr. fl. N. Am.* 1. *p.* 35. A. Americana, *var.* alba, *Pursh, fl.* 2. *p.* 336. A. spicata, *var.* alba, *Michx. fl.* 1. *p.* 308. A. brachypetala, *var. α. & δ. DC. prodr.* 1. *p.* 65.

Plant about two feet high; in foliage and inflorescence resembling the preceding species. Petals often emarginate or two-toothed at the apex. Pedicels of the flowers nearly as thick as the peduncle, at length ½ – 1 inch long, spreading, red. Berry about one-third of an inch in diameter, milk-white, and often tipped with purple.

Rocky woods; more common than the preceding in the southern counties. *Fl.* May. *Fr.* Aug. – Sept. A mild astringent and tonic (See *Wood & Bache's U. S. Dispens. app.* 1067). These two species are generally very distinct, and easily recognized by their peduncles and berries; but intermediate forms now and then occur. Dr. Knieskern found, in Cattaraugus county, an Actæa with thick peduncles and red berries. He did not find it in flower.

13. CIMICIFUGA. *Linn.; Juss. gen. p.* 234. *BUGBANE.*

[From the Latin, *cimex*, a bug, and *fugo*, to drive away.]

Sepals 4 – 5. Petals (or staminodia) 3 – 5, concave or unguiculate, sometimes by abortion fewer or none. Stamens numerous: anthers introrse. Style short: stigma simple. Carpels 1 – 8, follicular, many-seeded.—Perennial herbs. Leaves bi-triternately divided; segments incisely serrate. Flowers in virgate racemes, white.

§. MACROTYS, *Raf. Monogynous: carpels subglobose: seeds compressed, smooth, horizontal: staminodia several, very small, with long claws.* (Botrophis, *Raf.; Fisch. & Meyer.*)

1. CIMICIFUGA RACEMOSA, *Ell.* (Plate IV). *Black Snake-root. Rattle-weed.*

Racemes very long; leaflets ovate-oblong, incisely-toothed; staminodia slender, 2-forked.—*Ell. sk.* 2. *p.* 16; *Torr. compend. p.* 219; *Torr. & Gr. fl. N. Am.* 1. *p.* 36. Actæa racemosa, *Linn. amæn. acad.* 7. *p.* 193. *t.* 4; *Michx. fl.* 1. *p.* 308; *DC. prodr.* 1. *p.* 64; *Hook. fl. Bor.-Am.* 1. *p.* 27. Macrotys actæoides, *Raf. in Desv. jour. bot.* 2. *p.* 170. Botrophis serpentaria, *Raf. med. fl.* 1. *p.* 85. B. actæoides, *Fischer & Meyer, ind. sem. St. Petersb.* 1835. Christiphoriana, *&c. Dill. Elth.* 79. *t.* 67. *f.* 78.

Root thick and knotted, with long fibres. Stem 3 – 8 feet high, smooth and furrowed, leafy near the middle. Leaves triternate; leaflets 2 – 3 inches long. Racemes compound, terminal, 6 – 12 inches long: pedicels 3 – 4 lines long, bracteate. Flowers very fœtid. Stamens very numerous, white. Sepals roundish-ovate, very caducous, greenish white. Staminodia 4 – 8, cleft nearly half way down. Carpels globose-ovoid, obliquely beaked with the short thick persistent style. Seeds 7 – 8, angular.

Woods, in rich soil, not rare. *Fl.* Latter part of June – July. *Fr.* September. A showy plant when in flower. It is a popular remedy in most parts of the United States, being considered tonic and astringent, stimulating the secretions of the skin, kidneys, uterus and lungs. See *Wood & Bache's U. S. Dispens. p.* 200.

14. THALICTRUM. *Linn.; Endl. gen.* 4772. *MEADOW RUE.*

[Greek, *thallo*, to be green or flourishing.]

Sepals 4, rarely 5, petaloid, usually caducous. Petals none. Stamens numerous; anthers innate. Carpels (achenia) 4 – 15, pointed with the short style or stigma, sulcate or ribbed, sometimes inflated. Seed suspended. — Perennial herbs. Leaves bi-triternately divided. Flowers corymbose or paniculate, often dicœcious or polygamous, greenish-white or yellow.

§ 1. EUTHALICTRUM, *DC.* *Carpels ovoid or oblong, ribbed, sessile or slightly stipitate.*

† *Sepals caducous, shorter than the stamens: root fibrous.*

1. THALICTRUM DIOICUM, *Linn.* *Early Meadow Rue.*

Very smooth, dicœcious or polygamous; filaments filiform; anthers linear, elongated, mucronate; leaves on short petioles, ternately decompound; leaflets rounded, crenately and obtusely lobed, glaucous beneath; peduncles as long as the leaves; carpels oblong, sessile, strongly ribbed, twice the length of the slender curved style.— *Pursh, fl.* 2. *p.* 388; *DC. prodr.* 1. *p.* 12; *Hook. fl. Bor.-Am.* 1. *p.* 3; *Darlingt. fl. Cest. p.* 333; *Torr. & Gr. fl. N. Am.* 1. *p.* 39. T. lævigatum, *Michx. fl.* 1. *p.* 322.

Stem 1 – 2 feet high, slender, somewhat branched, with sheathing stipules at the base. Common petiole 1 – 3 inches long; leaflets about three-fourths of an inch in diameter, more or less distinctly 3-lobed, the lobes crenately toothed. Sepals 4 – 5, oval, obtuse, often purplish. Filaments much longer than the sepals, weak, almost capillary and nearly of the same thickness throughout; anthers yellowish. Fertile flowers with 6 – 8 stamens. Pistils 6 – 10; the styles (including the stigmatic portion) longer than the ovary; the persistent base, in maturity, shorter than the carpel: stigmas linear, elongated.

Common in woods, particularly in rich soil among rocks. *Fl.* April – May. *Fr.* June.

2. THALICTRUM CORNUTI, *Linn.* *Common Meadow Rue.*

Dicœcious or polygamous; filaments somewhat clavate; anthers oblong, obtuse; leaves sessile (the petiole divided to the base), ternately decompound; leaflets roundish-obovate or elliptical, 3-lobed, with the lobes rather acute, glaucous or somewhat pubescent beneath; peduncles longer than the leaves; carpels nearly sessile, acute at each end, strongly ribbed, twice as long as the style; stigma linear-oblong.—*Linn. sp. p.* 768; *Pursh, fl.* 2. *p.* 338; *Hook.*

fl. Bor.-Am. 1. *p.* 3. *t.* 2; *Torr. & Gr. fl. N. Am.* 1. *p.* 38. T. pubescens, *Pursh, l. c.* T. corynellum and T. revolutum, *DC. prod.* 1. *p.* 12. T. polygamum, *Muhl. cat. p.* 56. T. rugosum and Cornuti, *Darlingt. fl. Cest. p.* 334.

Stem 3 – 6 feet high, branching. Leaves very large, always sessile, the divisions of the petiole elongated; leaflets variable in size, form and pubescence, ovate, elliptical or roundish; often cordate at the base, but sometimes cuneate; lateral ones sometimes entire; the veins either scarcely prominent, or elevated and rugose; margin commonly revolute. Panicle compound, loose. Sepals greenish-white, oblong, much shorter than the stamens. Ovaries about 12, styles short; stigmas thick, pubescent. Carpels about 3 lines long, slightly stipitate, beaked with the persistent style.

A common tall plant in wet meadows, varying in its foliage according to the degree of exposure and shade. *Fl.* July – August. *Fr.* September.

†† *Sepals somewhat persistent, longer than the stamens: root grumous.*— (Syndesmon, *Hoffmannsegg.*)

3. THALICTRUM ANEMONOIDES, *Linn.* *Rue Anemone.*

Root fasciculately tuberous; flowers few, large, umbellate; floral leaves resembling an involucre; radical ones biternate.—*Michx. fl.* 1. *p.* 322; *DC. prod.* 1. *p.* 15; *Juss. ann. mus.* 3. *p.* 249. *t.* 31. *f.* 2; *Hook. fl. Bor.-Am.* 1. *p.* 4; *Darlingt. fl. Cest. p.* 333; *Torr. & Gr. fl. N. Am.* 1. *p.* 39; *Brit. fl. gard.* (2. ser.) *t.* 150. Anemone thalictroides, *Linn.; Pursh, fl.* 2. *p.* 387; *Willd. hort. Berol.* 1. *t.* 44; *Bigel. fl. Bost. p.* 233; *Bart. fl. Am. Sept.* 2. *t.* 44; *Bot. mag. t.* 866.

Root composed of several club-shaped fleshy tubers. Stems or scapes 4 – 8 inches high, commonly several from one root. Radical leaves on long slender petioles; cauline ones 1 – 3, verticillate, sessile, trifoliolate; leaflets petiolulate, roundish, obtusely 3 – 5-lobed. Peduncles 3 – 6, one-flowered, 1 – 2 inches long. Flowers nearly an inch in diameter, the central one (the first that expands) commonly larger than the others. Sepals 6 – 10, elliptical, white, sometimes slightly tinged with purple, twice as long as the stamens. Filaments filiform, or somewhat clavate: anthers oblong. Ovaries 6 – 10: style none: stigma simple. Carpels oblong, acute, prominently ribbed, slightly stipitate.

Common in most parts of the State, in open woods, but rather scarce in the western counties. It begins to flower in the latter part of April, and continues till June. Although so strongly resembling *Anemone* in its flower, the fruit shows that its true place is in the genus *Thalictrum*.

15. ZANTHORHIZA. *Marsh. arb.* 167; *Endl. gen.* 4803. YELLOW-ROOT.

[From the Greek, *xanthos*, yellow, and *rhiza*, a root.]

Sepals 5, petaloid. Petals 5, of 2 roundish gland-like lobes, raised on a pedicel. Stamens 5 – 10. Ovaries 5 – 10 – 15, pointed with the curved styles, 2 – 3-ovuled. Follicles membranaceous, sessile, compressed, obtuse, mostly 1-seeded. Seed suspended. — Suffrutescent: the root and bark yellow and bitter. Leaves pinnately divided, the segments incised. Racemes appearing with the leaves, compound. Flowers minute, dark purple; often, by abortion, polygamous.

1. ZANTHORHIZA APIIFOLIA, *L'Her.* *Yellow-root.*

L'Her. stirp. nov. p. 79. t. 38; *Lam. ill. t.* 854; *B. S. Bart. elem. bot. t.* 12; *Duham. arb. ed. nov.* 3. *p.* 181. *t.* 37, *ex DC. syst.* 1. *p.* 386; *Bart.* (*W. P. C.*) *veg. mat. med.* 2. *t.* 46; *Torr. & Gr. p.* 1. 40. Xanthorhiza simplicissima, *Marsh. l. c.*

Root large. Plant 2 – 3 feet high, branching. Outer bark grayish; the liber yellow. Leaves quinately pinnate; lobes ovate, 1 – 2 inches long, acute, sharply and incisely serrate and lobed; petioles 2 – 5 inches long. Racemes 2 – 4 inches long, slender, pendulous. Sepals elliptical, lanceolate, tapering at the base. Petals scarcely one-fifth as long as the stamens, the limb consisting of two roundish purple lobes, supported on a short narrow claw. Ovaries (in the pistillate plant) 12 – 15, oblong, terminated by a curved style of more than their own length. Follicles (in the pistillate plant) 7 – 10, membranaceous, 2-valved above, gibbous at the base, obtuse and somewhat recurved at the summit, the persistent style, at maturity (from the growth of the ventral suture) attached to the back about two-thirds of the way from the base. Seed ovoid, suspended from the summit. Embryo near the base of fleshy, very oily, albumen.

In a dark ravine, Sherburne, 11 miles from Hamilton (*Dr. Douglass*). *Fl.* April and beginning of May. I have seen no staminate or perfect flowers of this plant.

TRIBE V. *HYDRASTIDEÆ. Torr. & Gr.*

Sepals 3, *petaloid, caducous. Petals none. Stamens numerous: anthers innate. Ovaries numerous, 2-ovuled: styles short: stigmas dilated, induplicate. Fruit composed of baccate* 1 – 2*-seeded carpels, crowded in a globose head. — Herbaceous, perennial; rhizoma and roots yellow and bitter. Stem simple,* 2*-leaved,* 1*-flowered; the foliage and fruit resembling a* Rubus.

16. HYDRASTIS. *Linn.; Juss. gen. p.* 232; *Endl. gen.* 4777. YELLOW-ROOT.

[Supposed to be from the Greek *hydor*, water; because it grows in moist places.]

Character same as of the tribe.

1. HYDRASTIS CANADENSIS, *Linn.* *Yellow-root.*

Michx. fl. 1. *p.* 317; *Pursh, fl.* 2. *p.* 389; *Ell. sk.* 2. *p.* 55; *DC. prodr.* 1. *p.* 53; *Darlingt. fl. Cest. p.* 336; *Bot. mag. t.* 3019, *and t.* 3232 (the fruit). *Torr. & Gr. fl. N. Am.* 1. *p.* 40. Warneria Canadensis, *Mill. dict.*

Rhizoma a thick yellowish fleshy oblong tuber, about three-fourths of an inch long; roots consisting of numerous strong fibres. Stem 6 – 10 inches high, simple, pubescent, with several oblong, sheathing, greenish-yellow stipules at the base. The summit usually 2-leaved, and sometimes a separate radical leaf on a long petiole. Leaves 2 – 5 inches wide, palmately 3 – 5-lobed; the lobes acute, doubly serrate: lower leaf petiolate; upper one sessile. Peduncle an inch long. Calyx pale rose-color, small, falling very soon after the flower is expanded. Stamens very numerous, filaments linear-spatulate: anthers oval. Ovaries in a globose head: stigmas compressed, dilated. Carpels succulent when ripe, forming a compound purplish fruit about the size of a large raspberry. Seeds obovate; testa crustaceous, nearly black, shining, lined with a thin and membranaceous tegmen. Embryo minute, at the base of somewhat fleshy and oily albumen.

Shady moist woods. Parma, Monroe County, and Clinton, Oneida County; rare (*Dr. Bradley*). *Fl.* April – May. *Fr.* July.

The root (or rhizoma) is a bitter tonic and stimulant (*Lindl. med. bot.; Wood & Bache's U. S. Dispens. p.* 200). This plant has received various names, such as *Wild Curcuma, Golden Seal, Yellow Puccoon, Orange-root.*

ORDER II. MAGNOLIACEÆ. *Juss.* THE MAGNOLIA TRIBE.

Calyx of 3 – 6 deciduous sepals, somewhat petaloid. Petals 3 to many, usually in several rows. Stamens numerous; filaments short; anthers long, adnate and introrse. Ovaries several in a single row, or numerous and spicate on a prolonged receptacle or axis: styles short or none; stigmas simple. Carpels numerous, 1 – 2-seeded, aggregated or connate, and forming a strobile or cone-like fruit. Seeds anatropous, suspended or ascending, often with a pulpy exterior covering. Embryo minute, at the base of fleshy albumen.— Trees or shrubs, with large, alternate, usually coriaceous leaves, which are commonly punctate with minute dots: stipules membranaceous, convolute or applied face to face, caducous.

1. MAGNOLIA. *Linn.; Endl. gen.* 4737. *MAGNOLIA.*

[Named in honor of Prof. MAGNOL, a French botanist.]

Sepals 3, caducous, sometimes none, or confounded with the petals. Petals 6 – 12, caducous. Carpels 1 – 2-seeded, persistent, forming a strobile-like fruit, dehiscent by the dorsal suture. Seeds baccate, cordate when ripe, and the carpel opens suspended by a long funiculus composed entirely of spiral vessels.— Trees (rarely only large shrubs). Flowers solitary and showy, mostly fragrant.

1. MAGNOLIA GLAUCA, *Linn.* *Common Magnolia. Sweet Bay. Brewster.*

Leaves oblong or oval, white beneath; petals 9 – 12, ovate, narrowed at the base, erect.— *Michx. fl.* 1. *p.* 327; *Michx. f. sylv.* 1. *p.* 274. *t.* 52; *Ell. sk.* 2. *p.* 37; *Bigel. fl. Bost. p.* 229, *and med. bot. t.* 26; *Darlingt. fl. Cest. p.* 325; *Torr. & Gr. fl. N. Am.* 1. *p.* 42.

A shrub or small tree, from 8 to 30 feet high, with a smooth whitish bark. Leaves 3 – 5 inches long and 1 – 2 inches wide, rather acute, or obtuse, bright shining green above, very glaucous beneath, silky when young, deciduous. Flowers terminal, 2 – 3 inches in diameter, on thick peduncles of about an inch in length, very fragrant. Sepals oblong, concave. Petals white, as long as the sepals. Carpels in a head 1 – 1½ inch long, ovate, opening longitudinally, 1-seeded. Seeds as large as small peas, bright red, suspended for some time on a long thread-like funiculus.

Cedar swamps (*Cupressus thuyoides*), Long Island: not found elsewhere in the State. May – June. *Fr.* September.

The bark of this plant is a stimulating aromatic tonic and diaphoretic. *Wood & Bache's U. S. Dispens.*

2. MAGNOLIA ACUMINATA, *Linn.* *Cucumber Tree.*

Leaves deciduous, oval, acuminate, pubescent beneath; petals 6 9, oblong-obovate.—*Michx. fl.* 1. *p.* 328; *Michx. f. sylv.* 1. *p.* 278. *t.* 53; *Pursh, fl.* 2. *p.* 381; *Torr. & Gr. fl. N. Am.* 1. *p.* 43.

A tree 50 – 70 feet or more in height, and sometimes four feet in diameter. Leaves 6 – 8 inches long, and 3 – 5 inches wide, membranaceous, more or less pubescent underneath. Flowers, when fully expanded, 5 – 6 inches in diameter, of a yellowish color, glaucous externally. Fruit nearly cylindrical, often a little curved, about 3 inches long and three-fourths of an inch in diameter, when green resembling a young cucumber.

Not uncommon in the western part of the State. The younger Michaux found it on the Niagara river near the falls, nearly its northern limit. Prof. J. Hall observed it at Lewiston and Portage; also in Cattaraugus, where it attains a great size. Dr. Knieskern saw it in Alleghany, Cattaraugus, Chautauque, Erie, Niagara and Orleans counties. Greece, Monroe county (*Dr. Bradley*). Cayuga lake (*Dr. Alexander Thompson*). It is said to grow between Owego and Ithaca, and in Steuben and Chemung counties. Dr. Allen Wass informs me that it grows about four miles north of New-Lebanon Springs, Columbia county. In Erie county and other places, Dr. Knieskern says that it is sawed into boards and used for floors, etc. and also for cabinet work. The grain resembles that of Bass wood (*Tilia*), but it is more compact, and takes a finer polish. The bark of the tree is a mild aromatic, tonic and diaphoretic. *Lindl. med. bot. Wood & Bache's U. S. Dispens. p.* 417.

Magnolia Umbrella (tripetala, *Linn.*) is said by the younger Michaux to grow in the northern part of New-York, but this must be a mistake, for no other botanist has found it in so high a latitude. He probably meant the western or southwestern part, for it occurs in Pennsylvania, and probably in some of the counties bordering that State. I have, however, concluded not to admit it into our Flora, till it is actually found within the limits of New-York.

2. LIRIODENDRON. *Linn.; Endl. gen.* 4740. *TULIP TREE.*

[Greek, *leirion*, a lily, and *dendron*, a tree; from the form of its flowers.]

Sepals 3, caducous. Corolla of 6 petals, campanulate. Carpels densely imbricated, 1 – 2-seeded, deciduous, indehiscent, the summit lengthened into a lanceolate wing. — A large tree. Leaves deciduous, 3-lobed; the middle lobe emarginately truncate, the lateral ones often with 2 sinuses. Flowers large, solitary, greenish-yellow, orange within. Stipules flat.

1. LIRIODENDRON TULIPIFERA, *Linn.* *Tulip Tree. Tulip Poplar.*

Michx. fl. 1. *p.* 326; *Michx. f. sylv.* 1. *p.* 30. *t.* 61; *Bot. mag. t.* 275; *Bigel. med. bot. t.* 31; *Darlingt. fl. Cest. p.* 326; *Lond. arb. Brit. abr. p.* 36.

A large tree, 40 – 70 – 80 feet high, and 1 – 3 feet in diameter (in the western States

much larger); the trunk is perfectly straight, and of nearly uniform diameter for some distance upward; and the branches are very regularly disposed. The stipules are large, united face to face, forming a kind of pouch out of which the young leaves protrude. Flowers when fully expanded, about two inches in diameter, each with 2 large caducous bracts at the base. Sepals obovate-oblong, spreading, and at length reflexed. Petals oblong-obovate, obtuse, greenish-yellow, the lower half mixed with orange and red. Stamens nearly as long as the petals, in a single series; filaments stout, a little incurved; anthers linear and very long. Ovaries numerous, closely appressed to the axis: style none; stigmas, recurved. Fruit an elongated acute cone, about 2 inches long, consisting of numerous woody carpels, which are often mostly abortive, 1 – 2-celled.

Fertile woods, common in most parts of the State. *Fl.* Latter part of May and early part of June. *Fr.* Sept. The wood is valuable, being strong, light and close grained. It is used for inside work in building, and pannel work, trunks, etc. There are two varieties known to mechanics, the *White* and the *Yellow* Poplar; the latter being much preferred, as of finer grain, and more durable. The bark is a stimulating tonic and diaphoretic, and, according to the late Prof. Emmet, owes its active properties to a volatile crystalline principle, called by him *Liriodendrin*. The bark is said to enter into the composition of Milne's *Tomato Pill*. See *Wood & Bache's U. S. Dispens. p.* 408.

ORDER III. ANONACEÆ, *Juss.* THE CUSTARD-APPLE TRIBE.

Sepals 3 – 4, persistent, often united at the base. Petals 6, in two rows, hypogynous, coriaceous; the æstivation valvular. Stamens numerous, inserted on a hypogynous torus; the anthers extrorse, connective, large, 4-angled, and sometimes nectariferous at the summit. Carpels usually numerous (sometimes few), separate or cohering; styles short, or none; stigmas simple; ovules solitary or several, erect or ascending. Fruit composed of few, or mostly numerous carpels, closely aggregated, and sometimes cohering and forming a fleshy or pulpy mass when mature. Seeds one or more in each carpel; the testa brittle; embryo minute, at the base of hard ruminated albumen. — Trees or shrubs, with alternate, entire, usually dotted leaves, which are destitute of stipules. Flowers axillary, large, of a dull brown, whitish or greenish color.

1. UVARIA. *Linn.; Blume; Alph. DC. mem. Anon. p.* 25; *Endl. gen.* 4717.

[So named from *uva*, a grape; from the form of the fruit in some species.]

Sepals 3, united at the base. Petals 6. Ovaries few or numerous. Carpels oblong, baccate, often torulose, pulpy within, several-seeded. Low aromatic trees or shrubs, with deciduous leaves, and usually purplish flowers.

§. ASIMINA, Adans. *Carpels by abortion* 2 - 3 *or solitary; inner petals smaller than the outer ones; flowers solitary on short axillary peduncles, which are sometimes bracteolate.*

1. UVARIA TRILOBA, *Torr. & Gr.* *Papaw.*

Leaves oblong, obovate, acuminate, membranaceous; flowers arising from the axils of former leaves; petals dark purple, the exterior ones roundish, 3 – 4 times the length of the sepals.— *Torr. & Gr. fl. N. Am.* 1. *p.* 45. Anona triloba, *Linn.; Michx. f. sylv.* 2. *t.* 60. Orchidocarpum arietinum, *Michx. fl.* 1. *p.* 329. Porcelia triloba, *Pers. syn.* 2. *p.* 95; *Pursh, fl.* 2. *p.* 383. Asimina triloba, *Dunal, Anon. p.* 81; *DC. prodr.* 1. *p.* 87; *Ell. sk.* 2. *p.* 42; *Darlingt. fl. Cest. p.* 325; *Lond. arb. Brit. abr. p.* 38.

A shrub or small tree 6 – 10 feet or more in height, with a smooth grayish bark and slender branches. Leaves 6 – 8 inches long, 2½ – 3½ inches wide, on short petioles; the veins clothed with a brownish pubescence when young, but smooth when old. Flowers appearing rather before the leaves, on recurved pubescent peduncles. Sepals ovate, green, with a purplish pubescence externally. Petals of a dull purple, mixed with yellow, about an inch long, spreading, and more or less recurved. Stamens crowded on the torus. Ovaries 3 to 7, oblong, longer than the stamens. Fruit 2 – 3 inches long, consisting of one, or sometimes of several pulpy carpels, of a yellowish color. It is usually of an oval form, gibbous and irregular: fragrant, and palatable to some persons. The seeds are oval, compressed, of a light brown color, and about three-fourths of an inch long; the albumen is very distinctly ruminated.

Banks of rivers, in rich damp soil. Greece, Monroe county (*Dr. Bradley*). On Chautauque creek, where it empties into Lake Erie, abundant; also in several places further east (*Dr. Knieskern*). Prof. J. Hall informs me that it grows at Lewiston and Middleport, Niagara county. *Fl.* May. *Fr.* August.

ORDER IV. MENISPERMACEÆ. *Juss.* THE MOONSEED TRIBE.

Flowers dicœcious, rarely monœcious or polygamous. Sepals 3 – 12, in 1 to 3 rows, deciduous. Petals 1 – 8 (usually as many as the sepals), sometimes wanting in the pistillate flower. Stamens distinct or monadelphous, equal in number to the petals and opposite to them, or 2 – 4 times as many: anthers adnate or innate, and consisting of four globose lobes, or with the cells horizontal and placed end to end, opening longitudinally. Ovaries usually several, distinct or rarely united; commonly only one or two of them fructify. Fruit a drupe or berry, one-seeded, when young nearly straight, but at length becoming oblique, lunate, or so much incurved that the apex and base are brought into contact; the nut (endocarp) bony, and often tuberculate on the broad margin. Seed heterotropous, conformed to the cavity of the nut. Embryo large, enclosed in the rather thin fleshy albumen. — Climbing or twining shrubby or suffruticose plants. Leaves alternate, without stipules, simple and palmately veined. Flowers minute, in racemes or panicles.

1. MENISPERMUM. *Linn.; Endl. gen.* 4685. *MOONSEED*

[From *mene*, the moon, and *sperma*, a seed; the seeds or nuts being usually lunate.]

Flowers dicœcious. Sepals 4 – 8, in a double series. Petals 4 – 8, in a double series; sometimes none. STAM. FL. Stamens 12 – 20, distinct. PISTILL. FL. Ovaries 1 – 4 (usually solitary). Drupes 1 – 4 (usually solitary), globose-reniform. Racemes axillary, or supra-axillary. Sterile and fertile flowers often dissimilar.

1. MENISPERMUM CANADENSE, *Linn.* *Canadian Moonseed.*

Leaves peltate, with the petiole near the base, smoothish, angularly lobed, the lobes acute or obtuse; racemes compound; sepals 4 – 7; petals 6 – 7, very small, somewhat fleshy; stamens 15 – 19; anthers innate, 4-lobed. — *Michx. fl.* 2. *p.* 241; *Lam. dict. t.* 824; *Pursh, fl.* 2. *p.* 370; *DC. syst.* 2. *p.* 540; *Ell. sk.* 2. *p.* 715; *Darlingt. fl. Cest. p.* 570; *Torr. & Gr. fl. N. Am.* 1. *p.* 48. M. Virginicum, *Linn.; Willd. sp.* 4. *p.* 824.

Stem suffruticose at the base, or entirely herbaceous, 8 – 15 feet or more in length, slender. Leaves 3 – 4 inches long, and of rather greater breadth, with 3 – 5 angular lobes, often cordate at the base, pubescent on the veins and somewhat glaucous underneath; the petioles about as long as the leaves. Flowers very small, greenish yellow; the sterile ones in paniculate supra-axillary racemes: pedicels about one line long, bracteolate. Sepals commonly 4 – 5, obovate-oblong. Petals much smaller than the sepals, orbicular, obtusely cuneate at

the base. Filaments scarcely thickened at the summit: anthers of 4 spherical lobes. Racemes of fruit resembling *Frost grapes*. Drupe stipitate, about one-third of an inch in diameter, nearly black when mature, pruinose, curved so that the style and base are nearly in contact; pulp small in quantity. Nut compressed, forming a nearly complete ring. Seed terete, annular. Embryo linear, in the axis of fleshy albumen, and nearly of the same length.

Banks of rivers, woods, and in thickets; common. *Fl.* June – July. *Fr.* September – October. The root is employed as a tonic and diuretic, also as a detergent in cutaneous diseases (*Dr. J. M. Bigelow*). See *Riddel's Synops. Western Flora.*

ORDER V. BERBERIDACEÆ. *Vent.; R. Br.* THE BARBERRY TRIBE.

Flowers perfect. Sepals 3 – 9, deciduous, imbricated in one or more rows, often colored and calyculate with petaloid scales. Petals as many as the sepals and opposite them! or twice as many, often with a gland or appendage at the base inside. Stamens as many as the petals and opposite them! (twice as many as in Podophyllum): anthers extrorse; the cells commonly opening by a valve from the bottom to the top. Ovary solitary, simple: style continuous, often somewhat lateral or oblique: stigma orbicular or peltate. Fruit baccate or capsular. Seeds one or few, and then occupying only the top or bottom of the cell; or numerous and attached to the whole ventral suture, sometimes arillate: embryo in the axis, or near the base of fleshy or horny albumen.

TRIBE I. *BERBERIDEÆ. Torr. & Gr.*

Embryo in the axis, and occupying nearly the whole length of the albumen: radicle long: cotyledons flat, elliptical.— Shrubs. Leaves compound or reduced to a single leaflet, often stipulate. Flowers yellow. Filaments irritable.

1. BERBERIS. *Linn.; Endl. gen.* 4814. *BERBERRY.*

[*Berberys*, the Arabic name of the plant.]

Sepals 6, usually with three bracteoles at the base. Petals 6, commonly with two glands on the inside of each at the base. Stamens 6. Stigma orbicular, depressed, nearly sessile, rarely with a distinct style. Fruit a 1 – 9-seeded berry. Seeds erect.

1. BERBERIS VULGARIS, *Linn.* *Common Berberry or Barberry.*

Branches with triple spines, minutely dotted; leaves oval-obovate, closely serrate with bristly teeth; racemes nodding, many-flowered; petals entire; berries oblong.—*Willd. sp.* 2. *p.* 227; *Lam. ill. t.* 243; *Bigel. fl. Bost. p.* 128; *Hook. fl. Bor.-Am.* 1. *p.* 28, *excl. syn.*; *Torr. & Gr. fl. N. Am.* 1. *p.* 50; *Lond. arb. Brit. arb. p.* 42. B. vulgaris, *var.* Canadensis, *Torr. fl.* 1. *p.* 336, *not of Willd.*

A shrub 3 – 8 feet high, with yellowish-white wood and yellow pith, producing numerous suckers; spines sometimes simple. Leaves deciduous, of a bluish-green color, acid. Flowers pale yellow, emitting a peculiar and not unpleasant odor. Berries very acid, about half an inch long, 1 – 2-seeded.

Hedges, fields and road sides: introduced from Europe and naturalized in many places along the Hudson, but not yet occurring in the interior of the State. *Fl.* Middle to the end of May. *Fr.* September.

The inner bark of the stem and roots, with the addition of alum, affords a yellow dye. The fruit is often made into a sweetmeat, and the jelly mixed with water is a pleasant drink in fevers. Many agriculturalists are of opinion that the Barberry produces blight in grain. This prejudice has come down from ancient times, but it is probably not well founded. In BERBERIS *proper*, the primary leaves are changed to spines, in the axils of which the secondary leaves are fascicled.

TRIBE II. *NANDINEÆ. Torr. & Gr.*

Embryo minute at the apex of the albumen, often excentric or oblique with respect to the hilum: radicle short and thick: cotyledons very small, roundish. Perennial herbs. Leaves decompound or lobed.

2. LEONTICE. *Linn.*; *R. Br.*; *Endl. gen.* 4810.

[Abridged from *Leontopetalon*; the leaf being thought to resemble a lion's foot.]

Sepals 3 – 6. Petals 6, bearing a little scale or nectary at the base within. Pericarp membranaceous, caducous or inflated, 2 – 4-seeded. Seeds erect, globose: albumen horny. — Smooth herbs, with a tuberous rhizoma. Radical leaves petiolate, pinnately or ternately divided. Flowers in loose racemes or panicles.

§. CAULOPHYLLUM, *Michx.* *Pericarp bursting at an early period! exposing the finally drupe-like seed raised on its thickened funiculus.*

1. LEONTICE THALICTROIDES, *Linn.* *Blue Cohosh. Pappoose-root.*

Leaves triternate; the radical ones on long petioles; cauline 1 – 2, destitute of a common petiole; the lower triternate, the upper (when present) much smaller and biternate; leaflets

incisely 2 – 3 lobed. — *R. Br. in Linn. trans.* 12. *p.* 145. *t.* 7; *Torr. fl.* 1. *p.* 336; *Darlingt. fl. Cest. p.* 213; *Torr. & Gr. fl. N. Am.* 1. *p.* 52. Caulophyllum thalictroides, *Michx. fl.* 1. *p.* 205. *t.* 21; *Pursh, fl.* 1. *p.* 218; *Bot. mag. t.* 2345.

Plant purplish and glaucous when young. Stem simple, 1 – 2 feet high, clothed at the base with several oblong imbricated scales. Leaves commonly 2, the petiole of the lowest divided nearly to the base; leaflets 1 – 2½ inches long and an inch or more wide, often obtusely cuneate at the base, the lateral ones more or less oblique and nearly or quite sessile; terminal one petiolulate. Panicle small, racemose; the peduncle arising from the base of the upper leaf. Petals greenish-yellow, about twice the length of the sepals, obovate-lanceolate, unguiculate, with a reniform viscid scale on the inside at the base. Stamens scarcely one-third the length of the petals; filaments short and thick; anthers ovate, opening, as in the greater part of the family, by two valves, formed by the separation, all around, of the face of each cell; the valves curving upward, and remaining attached by a small surface. Ovary ovoid, narrowed at the base, obliquely beaked with the short style; ovules 2, ascending. Pericarp extremely thin, bursting soon after the impregnation by the growth of the young seeds, the vestiges only remaining; seeds naked, about the size of a large pea (one of them often abortive), globose, deep blue when ripe; the testa somewhat fleshy, supported on a short thick funiculus: albumen horny, of the form of the seed.

Fertile rocky woods; not uncommon. *Fl.* April – May. *Fr.* August. The root of this plant is in some repute as a diuretic and bitter, but its powers have probably been overrated. The roasted seeds have much the taste and odor of coffee, but I am not aware of their having been much used as a substitute for that article.

3. JEFFERSONIA. *Bart. in trans. Amer. phil. soc.* 3. *p.* 334, *cum icon.*; *Endl. gen. no.* 4807. *TWIN-LEAF.*

[Named in honor of Mr. JEFFERSON, late president of the United States.]

Sepals 4, petaloid. Petals 8, oblong. Stamens 8: anthers linear. Ovary obovate; stigma peltate, nearly sessile. Capsule somewhat stipitate, opening by a transverse semilunar chink near the summit. Seeds numerous, crowded in several rows on the broad lateral placenta: aril lacerate, unilateral. Embryo minute, at the base of fleshy albumen. Rhizoma horizontal, throwing up a simple one-flowered scape, and bifoliolate or deeply 2-parted leaves. Habit of *Sanguinaria.*

1. JEFFERSONIA DIPHYLLA, *Pers.* *Twin-leaf. Rheumatism-root.*

Pers. syn. 1. *p.* 418; *Pursh. fl.* 1. *p.* 268; *Bot. mag. t.* 1513; *Torr. fl.* 1. *p.* 399; *Torr. & Gr. fl. N. Am.* 1. *p.* 53. J. binata, *Bart. l. c.* J. Bartonis, *Michx. fl.* 1. *p.* 237. Podophyllum diphyllum, *Linn.*

Rhizoma thick, horizontal, somewhat fleshy, throwing off numerous branching fibrous roots. Leaves all radical, glaucous beneath, forming a tuft, with several foliaceous oblong sheaths at the base; lamina parted to the very base, and usually considered as formed of two leaflets: lobes when fully grown 3 – 4 inches long and nearly 2 inches wide, entire, obscurely toothed or sinuate. Flowers white, about an inch in diameter. Sepals sometimes 3 or 5. Stamens shorter than the petals: anthers linear-oblong. Stigma with the margin cristate or undulate. Seeds ovate-oblong; testa brownish, thick.

Rich calcareous soils in the western and northern counties: not found in the valley of the Hudson. *Fl.* April. *Fr.* July.

The root is said to be stimulant, diaphoretic and antispasmodic. It is sometimes employed as a remedy in chronic rheumatism.

4. PODOPHYLLUM. *Linn.; Endl. gen.* 4807. *MAY-APPLE.*

[Named from the Greek, *pous*, a foot, and *phyllon*, a leaf; the leaf resembling the foot of some birds.]

Sepals 3, caducous. Petals 6 – 9, obovate. Stamens 12 – 18: anthers linear, bursting by a double longitudinal line. Ovary ovoid: stigma thick, nearly sessile, peltate. Fruit ovoid, fleshy, indehiscent. Seeds numerous, in several rows, on a thick lateral placenta, enclosed in a pulpy arillus.—Rhizoma horizontal, (cathartic.) Stem erect, simple, 2-leaved and one-flowered at the summit. Leaves peltate, lobed. Fruit large, slightly acid, and somewhat edible.

1. PODOPHYLLUM PELTATUM, *Linn.* *May-apple. Mandrake. Hog-apple.*

Stamens 12 – 18; leaves 5 – 7-parted, the segments cuneiform-oblong, somewhat lobed or toothed at the apex.—*Michx. fl.* 1. *p.* 309; *Bot. mag. t.* 1819; *Bigel. mat. med.* 2. *t.* 23; *Nutt. gen.* 2. *p.* 10; *Darlingt. fl. Cest. p.* 318; *Torr. & Gr. fl. N. Am.* 1. *p.* 54.

Rhizoma a little thicker than a goose quill, horizontal, creeping, with thick branching fibres at the joints. Stem 10 – 15 inches high, erect, smooth and naked, with several sheathing scales at the base. Leaves on the fertile stems 2, very excentrically peltate, palmately 5 – 7-parted; barren stems producing but a single leaf, which is peltate in the centre. Flower 1½ – 2 inches in diameter; the peduncle about an inch long, and usually drooping. Petals white, obovate. Stamens one-third the length of the petals. Fruit the size of a pigeon's egg, oval, somewhat gibbous, yellowish when ripe. Seeds ellipsoid, almost entirely enveloped in a pulpy arillus: testa membranaceous: raphe linear: embryo minute, at the base of copious fleshy albumen.

Moist open woods and meadows, in rich soil; common. *Fl.* May. *Fr.* August. The acid pulpy fruit is eaten by some persons, but it is not very agreeably tasted. The root is a well known cathartic, and has long been used as a cathartic, its properties being similar to those of Jalap. It is, however, rather drastic (See *Wood & Bache's U. S. Dispens. p.* 518).

Dr. Knieskern informs me that he knew of a case where a whole family was poisoned, from the young plant having been eaten as *greens* in the early spring. They were saved by the prompt exhibition of emetics. A second species occurs in the mountains of Nepal.

GROUP 2. *Ovaries several, either separate, or perfectly united into a compound pistil, which is several-celled, with the placentæ not parietal. Stamens indefinite, inserted on the receptacle or torus.—Aquatic herbs. Leaves involute in vernation.*

ORDER VI. CABOMBACEÆ. *Richard.* THE WATER-SHIELD TRIBE.

Sepals 3 – 4, colored inside, persistent. Petals 3 – 4, alternate with the sepals, Stamens 6 – 36: filaments slender; anthers innate. Ovaries 2 or many, with 2 or 3 pendulous anatropous ovules inserted on the *dorsal* suture! Carpels separate, indehiscent, follicle-like, somewhat fleshy. Seed 2 – 3 (sometimes by abortion solitary), pendulous, with a minute embryo enclosed in the thickened membrane or sac of the nucleus, which is half immersed in the fleshy albumen at the extremity next the hilum. — Aquatic perennial herbs, with the emersed leaves centrally peltate; the submerged ones sometimes finely dissected. Peduncles axillary, solitary, one-flowered.

1. BRASENIA. *Schreb.; Endl. gen.* 5025. Hydropeltis, *Michx.* *WATER-SHIELD.*

Sepals 3 – 4, colored within, persistent. Petals 3 – 4. Stamens 18 – 36. Ovaries 6 – 18: ovules 2 (sometimes one), alternate. Carpels oblong, acuminate, 1 – 2-seeded. — Stem, peduncles, petioles and under surface of the leaves thickly covered with a viscid transparent gelatinous substance. Leaves all centrally peltate. Flowers brownish-purple.

1. BRASENIA PELTATA, *Pursh.* *Water-shield. Water-target.*

Pursh, fl. 2. *p.* 389; *Nutt. gen.* 2. *p.* 23; *Gray in ann. lyc. N. York.* 4. *p.* 46; *Torr. & Gr. fl. N. Amer.* 1. *p.* 55. B. Hydropeltis, *Muhl. cat. p.* 55; *Torr. Comp. p.* 228. Hydropeltis purpurea, *Michx. fl.* 1. *p.* 324 *t.* 29; *Bot. mag. t.* 1147; *Ell. sk.* 2. *p.* 66; *DC. prodr.* 1. *p.* 112; *Darlingt. fl. Cest. p.* 601.

Stem 1 – 15 feet long, according to the depth of water. Every part of the plant, except the upper surface of the leaves, of a dull purple color. Leaves 2 – 4 inches long and 1½ – 2 inches wide, very entire, exactly elliptical, with the petiole inserted in the centre; upper surface shining; veins 11 – 14, radiating from the centre. Peduncles 3 – 6 inches long. Flowers an inch in diameter. Petals and sepals elliptical-linear. Ovaries in one or more whorls; tapering into a short linear style, which is stigmatose on the inner surface. Carpels somewhat ventricose. Seeds often solitary, roundish-obovoid; testa thick and crustaceous.

Floating in still water: Long Island, and in the valley of the Hudson, as far north as Troy. I have not observed it in the northern counties. *Fl.* Latter part of June – July. *Fr.* August.—This plant is remarkable for its beautifully peltate leaves, and the order to which it belongs, for the very unusual insertion of the ovules. It is remarkable that it is also a native of New-Holland. See *Endl. gen. l. c.*

ORDER VII. NELUMBIACEÆ. *Bartl.* THE SACRED-BEAN TRIBE.

Calyx of 4 – 5 deciduous sepals. Petals numerous, inserted in several rows at the base of a large fleshy obconical torus. Stamens numerous, inserted in the torus in several rows; the filaments petaloid: anthers adnate and introrse. Ovaries numerous, separately immersed in little hollows of the very large flat-topped torus: ovule solitary, suspended, anatropous. Style short: stigma minute, capitate. Nuts numerous, ovoid-globose, at length loose and more than half immersed in the torus, crowned with the short style. Seed destitute of albumen. Embryo large, with two fleshy cotyledons; the plumule highly developed, consisting of a pair of primordial leaves, and a bud, enclosed in the persistent membrane of the nucule. — Aquatic perennial plants, with large centrally peltate leaves arising from a thick tuberous rhizoma. Flowers very large.

1. NELUMBIUM. *Juss.; Endl. gen.* 5026. *SACRED BEAN.*

[Altered from *nelumbo*, the Ceylon name.]

Character same as of the order.

1. NELUMBIUM LUTEUM, *Willd.* *Great Yellow Water-lily. Water Chinquepin.*

Anthers produced into a linear appendage. — *Michx. fl.* 1. *p.* 317; *Turpin in ann. mus.* 7. *p.* 210. *t.* 11. *f.* 17; *DC. prodr.* 1. *p.* 113; *Torr. compend. p.* 228; *Torr. & Gr. fl. N. Am.* 1. *p.* 57. Nymphæa Nelumbo, *Walt. fl. Car. p.* 155. Cyamus flavicomus, *Salisb. ann. bot.* 2. *p.* 45; *Pursh, fl.* 2. *p.* 398. C. luteus, *Nutt. gen.* 2. *p.* 25; *Ell. sk.* 2. *p.* 67; *Bart. fl. Am. Sept.* 2. *p.* 77. *t.* 63; *Nutt. in Amer. phil. trans.* 2 *ser.* 5. *p.* 160.

The tuberous rhizomas, according to Mr. Nuttall, resemble those of the *Sweet Potato*, and are traversed internally by from five to seven longitudinal cavities. They are found at the depth of from twelve to eighteen inches below the surface of the earth, and are connected by running roots. When fully ripe (which is when the seeds have arrived at maturity), they become, after considerable boiling, as farinaceous, agreeable and wholesome as the potato. The leaves are orbicular, and a foot or more in diameter, paler beneath, and marked with prominent radiating veins. Peduncles slightly muricate, partly emerged. Flowers pale yellow, 6 – 8 inches in diameter. Sepals obovate, the two exterior ones smaller. Torus turbinate, when mature 3 – 4 inches in diameter; the flat-top with 15 – 20 excavations, in which are lodged the roundish esculent nuts.

Big Sodus Bay, Lake Ontario (*Dr. Sartwell*); the only known locality of this splendid plant in the State of New-York. *Fl.* June. *Fr.* September.

ORDER VIII. NYMPHÆACEÆ. *Salisb.* THE POND-LILY TRIBE.

Sepals and petals several or numerous, imbricated, passing gradually into each other; the former persistent, the latter inserted on the fleshy torus which surrounds the pistil; inner series gradually passing into stamens. Stamens numerous, in several rows, inserted into the torus with or above the petals; the petaloid filaments often produced above the adnate introrse anther-cells. Ovary many-celled; ovules numerous, attached to the dissepiments, anatropous. Stigma large, peltate, radiate, compound, formed of as many rays or united stigmas as there are cells or carpels in the ovary. Fruit not opening, somewhat fleshy when mature, crowned by the stigma, many-celled. Seeds covering the spongy dissepiments. Embryo minute, enclosed in the membranous sac of the nucleus, which is situated next the hilum, and half immersed in the mealy albumen. — Aquatic herbs, with peltate or cordate leaves, and one-flowered peduncles. Flowers large, white, rose-color or yellow.

1. NYMPHÆA. *Tourn.; Endl. gen.* 5020. *WHITE WATER-LILY.*

[So called from its inhabiting the water, as the *nymphs* were wont to do.]

Sepals 4, at the base of the torus. Petals numerous, inserted, as well as the stamens, into the fleshy torus surrounding the ovary. Flowers white or rose-color.

1. NYMPHÆA ODORATA, *Ait.* *Great White Water-lily.*

Leaves oval-orbicular, or somewhat reniform, with the primary veins prominent and numerous underneath; stigma 16 – 20-rayed; rays incurved.— *Torr. & Gr. fl. N. Am.* 1. *p.* 57.

var. 1: sinus and lobes of the leaves more or less acute. — *Torr. & Gr. l. c.* N. odorata, *Ait. Kew.* (*ed.* 1.) 2. *p.* 227; *Willd. hort. Berol.* 1. *t.* 39; *Pursh, fl.* 2. *p.* 368; *DC. syst.* 2. *p.* 57; *Ell. sk.* 2. *p.* 7; *Hook. fl. Bor.-Am.* 1. *p.* 32. N. alba, *Michx. fl.* 1. *p.* 311.

var. 2: smaller; leaves and peduncles purplish; flowers rose-color. — *Torr. & Gr. l. c.* (under *var.* ζ.) N. odorata, *var.* rosea, *Pursh, l. c.* N. odorata, *var.* minor, *Bot. mag. t.* 1652. N. minor, *DC. l. c.*

Rhizoma very thick, creeping in the mud. Petioles and peduncles about the size of a crow-quill, varying in length according to the depth of the water. Leaves 4 – 7 inches long and 3 – 6 inches wide, coriaceous, always lying on the surface of the water; the sinus reaching to the centre of the lamina. Flowers 3 inches or more in diameter when fully expanded, very odorous, usually closing in the afternoon. Sepals about as long as the outer petals, elliptical. Petals about 30, the inner rows gradually becoming narrower and passing into stamens. Stigma large, sessile, yellowish, with a roundish gland in the centre; the margin formed of numerous linear incurved rays. Fruit baccate, ovate, marked by the insertion of the stamens and petals.

Not uncommon in ponds and slow-flowing streams. June – August. One of the most ornamental plants of the United States. The *var.* 2. occurs in shallow ponds on Long Island. The rhizoma is sometimes used for dyeing a brown color, and also as a styptic and tonic.

2. NUPHAR. *Smith; Endl. gen.* 5021. *YELLOW POND-LILY.*

[The name *nuphar*, of Dioscorides, has been applied to this genus. According to Förskal, the Arabic name is *naüfar.*]

Sepals 5 – 6. Petals numerous, nectariferous on the back, much smaller than the sepals, and inserted with them and the stamens at the base of the torus. Flowers yellow.

1. NUPHAR LUTEA, *Smith.* *Small-flowered Yellow Pond-lily.*

Sepals 5; stigma 16 – 20-rayed, deeply umbilicate; the margin entire; leaves cordate-oval, with approximate lobes; petioles triquetrous (*DC.*). — *Ait. Kew.* (*ed.* 2.) 3. *p.* 295; *Pursh, fl.* 2. *p.* 369; *Hook. fl. Bor.-Am.* 1. *p.* 32; *Bong. veg. Sitcha, p.* 124; *Torr. & Gr. fl. N. Am.* 1. *p.* 58. Nymphæa lutea, *Linn.*

var. *Kalmiana:* stigma 8 – 14-rayed, somewhat crenate. *Torr. & Gr. l. c.* N. Kalmiana, *Pursh, l. c.; Hook. l. c.* Nymphæa lutea, *var.* Kalmiana, *Michx. l. c.* N. Kalmiana, *Bot. mag. t.* 1243.

Leaves always floating, 3 – 6 inches long (in the var. *Kalmiana* usually much smaller, sometimes scarcely more than an inch long). Flower an inch and a half (the var. scarcely an inch) in diameter.

In ponds and slow-flowing waters: not rare in the interior of the State; but seldom found near the seacoast. *Fl.* June.

The small-leaved variety has been considered as a distinct species by some botanists; but it often passes into the common form.

2. NUPHAR ADVENA, *Ait.* *Common Yellow Pond- or Water-lily. Spatterdock.*

Sepals commonly six, the outer ones smaller; stigma slightly umbilicate, 12 – 25-rayed, the margin repand or crenate; leaves cordate, with the lobes diverging; petioles semiterete.— *Pursh, fl.* 2. *p.* 36; *Ell. sk.* 2. *p.* 8; *Hook. fl. Bor.-Am.* 1. *p.* 32; *Darlingt. fl. Cest. p.* 318; *Torr. & Gr. fl.* 1. *p.* 58. Nymphæa advena, *Michx. fl.* 1. *p.* 311.

Rhizoma rooting in the mud at the bottom of the water, 2 – 4 inches in diameter and several feet long, marked with the scars of former petioles. Leaves erect in shallow water, floating on the surface when the water is deep, 6 – 10 inches long and 4 – 7 inches wide, somewhat coriaceous; petioles and peduncles varying in length according to the depth of the water, stout. Flowers about two inches in diameter. Sepals roundish, concave, roughish: the three exterior green, mixed with some yellow; the three interior larger, yellow tinged with green at the base. Petals 10 – 14, oblong, cuneate, truncate, fleshy, not half the length of the sepals; the inner ones gradually passing into stamens. Stamens 100 or more, at first closely applied to the ovary, at length spreading. Ovary oblong; the stigma large and sessile; the upper surface marked with 12 – 25 (usually from 12 – 16) elevated radiating lines, which are the true stigmas of the several carpels.

Ponds and slow-flowing streams; often where the water is brackish: common throughout the State. *Fl.* Early in May – September. *Fr.* August – September. It is not easy at all times to distinguish this (especially the *var.* Kalmiana) from the preceding species. The flowers sometimes occur with five sepals, and the stigma in the latter is often a little crenate. The rhizoma is bitter and astringent, turning quickly black when cut with a steel knife. It is sometimes used in domestic practice as a tonic, and, in a bruised form, as a poultice.

ORDER IX. SARRACENIACEÆ. *De la Pylaie.* THE SARRACENIA TRIBE.

Floral envelopes consisting of 4 – 10 leaflets; the exterior more or less herbaceous and sepaloid. Stamens numerous: anthers more or less versatile, introrse. Ovary 3 – 5-celled, with the placentæ in the axis: ovules numerous, anatropous: style distinct, single, truncate, with a minute stigma; or expanded into a large foliaceous peltate stigma. Capsule 3 – 5-celled; the dehiscence loculicidal; placentæ projecting from the axis into the cells. Seeds obovoid, numerous, with a minute cylindrical embryo next the hilum, and copious albumen. — Perennial herbs, growing in marshes. Leaves all radical; the petiole large and hollow, pitcher or trumpet-shaped; the lamina small and resembling a lid, but not closing the orifice. Scapes one- or several-flowered: flowers large, nodding.

1. SARRACENIA. *Tourn.; Croom in ann. lyc. New-York,* 4. *p.* 98; *Endl. gen.* 5023. *SIDE-SADDLE FLOWER.*

[In honor of Dr. SARRAZIN, a French physician, who resided in Quebec. He sent the plant to Tournefort, who named it Sarracena: since altered to Sarracenia. See *Tourn. inst. ed.* 3. *p.* 657. *t.* 476.]

Sepals 5, persistent, with 3 small bracts at the base. Petals 5. Stigma very large, peltate, 5-angled, covering the 5-celled ovary. Capsule 5-celled. — Flowers solitary, on a long naked scape. Leaves with a longitudinal wing on the inner side of the tube.

1. SARRACENIA PURPUREA, *Linn.* *Common Side-saddle Flower.*

Leaves ascending, arched, the tube inflated, gibbous, with a very broad wing; lamina erect, cordate, hairy within; flower purple. — *B. S. Bart. elem. bot. t.* 1.; *Michx. fl.* 1. *p.* 310; *Bot. mag. t.* 849; *Ell. sk.* 2. *p.* 9; *Bigel. fl. Bost. p.* 213; *Hook. fl. Bor.-Am.* 1. *p.* 33; *De la Pyl. in ann. Linn. soc. Par.* 6. *p.* 388. *t.* 13; *Croom, l. c. p.* 98; *Torr. & Gr. fl. N. Am.* 1. *p.* 59.

var. *heterophylla:* flowers ochroleucous. S. purpurea, β. *Torr. compend. p.* 217. S. heterophylla, *Eat. man. ed.* 4. (1822), *p.* 447.

Rhizoma 2 – 4 inches long, somewhat woody, yellowish within, throwing off numerous brown fibres. Leaves of a yellowish green color, alternate, several of the lowest ones reduced to sheathing scales: the petiole 3 – 6 inches long, tapering at the base, hollow and swollen upwards into a large pitcher- or ewer-shaped cavity, capable of holding several ounces of water, the mouth contracted; the wing 3 – 7 lines wide in the middle; lamina 1 – 2 inches in diameter, coarsely reticulated with purplish veins, the inner surface covered with short stiff hairs pointing downward. Inner surface of the tube from the orifice to near the middle,

smooth and somewhat polished; the lower part furnished with very slender hairs pointing downward. Scape 10 – 16 inches high, smooth. Flower about two inches in diameter. Bracts ovate, about four lines long, resembling a small exterior calyx or involucre. Sepals ovate, obtuse, of a dull green color mixed with purple. Petals panduriform, purple, with a broad claw, the lamina inflected over the stigma. Stamens concealed by the ample stigma: filaments short: anthers large, oblong: pollen globular, extremely minute. Style about a line long: stigma an inch or more in diameter, a little concave in the centre, marked on the upper surface with five radiating lines, which terminate in notched angles or lobes. The true stigmas are five in number, and situated at the angles of the large peltate body. Capsule roundish, obtusely 5-angled, the surface rough like shagreen. Seeds very numerous, about a line in length, covering the large placentæ that project into the cells: raphe very broad and somewhat cristate; testa rough, thick and crustaceous.

Swamps, particularly where Sphagnum abounds: rather common. *Fl.* May – June. *Fr.* August. The variety with yellowish flowers was found in Junius, Seneca county, by Dr. Sartwell, and hitherto has not been observed in any other part of the State. It was first discovered about twenty-five years ago, in Northampton, Massachusetts, by the late Prof. Eaton, who at first regarded it as a mere variety of *S. purpurea*, but afterwards he described it as a distinct species. It does not differ essentially from the common variety, except in the color of the flower. The two kinds of foliage noticed by Mr. Eaton are not uncommon in the purple-flowered form; the new and imperfectly developed leaves, and the persistent leaves of the previous season, being found on the same specimen.

The genus *Sarracenia* (of which there are six species known, all of them peculiar to North America, and five of them growing exclusively in the southern States) is remarkable for its hollow, pitcher-form leaves, and for the arrangement of the hairs upon the lamina and in the tube. The cavity is often found partly full of water, which seems to be derived from rain and dews; for there is no evidence of its being secreted by the hairs of the tube, as supposed by Lindley. The cavity always contains dead insects, and is sometimes one-third filled with them, so that in warm weather I have known their putrescence to render the swamp, where the plant abounds, highly offensive. The insects, in creeping over the hairy surface of the lamina, find it difficult to return, in consequence of their feet becoming wedged in the short stiff hairs which extend beyond the orifice. Passing over the smooth upper surface of the tube, they are again detained by the hairs below, where they are either drowned in the water usually contained in the tube, or starved to death. What purpose, in the economy of the plant, is thus accomplished, has never been determined. — *S. purpurea* is, in some parts of the State, known by the name of the *American Pitcher-plant;* in other places, it is called the *Huntsman's Cup.*

GROUP 3. *Ovary compound (composed of two or more united carpels), with parietal placentæ! Calyx entirely free from the ovary. Stamens and petals inserted on the receptacle; the former distinct, except in* Fumariaceæ. — *Leaves not punctate or dotted.*

ORDER X. PAPAVERACEÆ. *Juss.* THE POPPY TRIBE.

Calyx of 2 (rarely 3) caducous sepals. Corolla of 4 – 6 regular deciduous petals. Stamens 6 – 24, (and then usually as many or twice as many as the petals), or numerous: anthers innate. Ovary composed of 2 or more united (very rarely distinct) carpels, with numerous anatropous ovules: style short or none: stigmas, when several, usually radiate upon the flat summit of the ovary. Fruit one-celled, either pod-shaped with 2 – 3 – 5 placentæ, or capsular with numerous parietal placentæ, from which the valves often separate. Seeds numerous, with a minute embryo at the base of fleshy and oily albumen. — Glabrous herbs (or very rarely shrubs), with commonly a milky or colored narcotic and often acrid juice. Leaves alternate, without stipules.

1. SANGUINARIA. *Linn.; Endl. gen.* 4818. *BLOOD-ROOT.*

[From the Latin, *sanguis*, blood; in allusion to the red color of its juice.]

Sepals 2. Petals 8 – 12. Stamens about 24. Stigmas 2, connate. Capsule oblong, somewhat pod-shaped, acute at each end, 2-valved; the valves separating from the persistent filiform placentæ. Seeds obovoid-globose, with a cristate raphe. — An herbaceous perennial, with orange-red juice, and a large creeping rhizoma. Scapes one-flowered, each accompanied usually by a single leaf. Flower rather large, white.

1. SANGUINARIA CANADENSIS, *Linn.* *Blood-root. Red-root. Red Puccoon.*

Michx. fl. 1. *p.* 309; *Bot. mag. t.* 162; *Nutt. gen.* 2. *p.* 9; *Bigel. med. bot.* 1. *p.* 75. *t.* 7; *DC. prodr.* 1. *p.* 131; *Hook. fl. Bor.-Am.* 1. *p.* 35; *Darlingt. fl. Cest. p.* 317; *Torr. & Gr. fl. N. Am.* 1. *p.* 62.

Rhizoma 2 – 3 inches long and half an inch in diameter, throwing up from a bud at the extremity a scape and one leaf, or rarely a pair of leaves with 2 – 3 membranaceous sheathing scales at the base. Petiole 2 – 6 inches long; the lamina during flowering time only

about 2 inches wide, but later in the season more than twice that width; the outline cordate-reniform, sinuately 5 – 7 lobed about half way to the base, the lobes entire or repandly toothed. Scape 3 – 8 inches long, often of a purplish color. Flower 1 – 1½ inch in diameter. Sepals ovate-oblong, falling very early. Petals usually about 8, oblong, narrowed at the base. Stamens unequal, one-half or one-third the length of the petals: anthers linear, innate, introrse. Stigmas sessile, thick, glandularly pubescent. Capsule about an inch long, tapering to a sharp point.

Common in fertile woods, sometimes beginning to flower towards the end of March. *Fr.* June.

The root or rhizoma has long been an officinal article, and is in considerable repute for its emetic, cathartic and expectorant qualities. Its active principle is a peculiar vegetable alkali discovered by the late Professor Dana, and named *Sanguinarina*. It is remarkable for forming orange-red salts. See *Ann. lyc. N. York, vol.* 1, *and Wood & Bache's U. S. Dispens. p.* 579.

2. CHELIDONIUM, *Linn.; Endl. gen.* 4819. *CELANDINE.*

[Named from *chelidon*, a swallow; probably because the plant begins to flower about the time this bird arrives.]

Calyx of 2 sepals. Corolla of 4 petals arranged in a cruciate manner. Stamens rather numerous. Stigma 2-lobed. Capsule pod-shaped, linear, 2-valved; valves dehiscing from the base to the apex. Seeds numerous, furnished with a glandular cristate raphe. — Perennial herbs, with a saffron-colored acrid and fetid juice. Leaves pinnately divided. Flowers middle-sized, yellow.

1. CHELIDONIUM MAJUS, *Linn.* *Common Celandine.*

Peduncles many-flowered; pedicels somewhat umbellate; leaves glaucous; the segments ovate, crenately incised or lobed; terminal one cuneiform-obovate; capsules torulose.—*Eng. bot. t.* 1531; *Pursh, fl.* 2. *p.* 365; *Bigel. fl. Bost. p.* 210; *DC. prodr.* 1. *p.* 123; *Darlingt. fl. Cest.* 317; *Torr. & Gr. fl. N. Am.* 1. *p.* 62.

Root fusiform. Stem 1 – 2 feet high, branching from near the base, somewhat hairy. Leaves large, pale green, with 5 – 7 segments. Peduncles axillary, 2 – 4 inches long, bearing at the summit 3 – 7 umbellate flowers, the pedicels of which are nearly an inch in length, and surrounded by an involucre at the base. Petals 4 – 5 lines long, and with the sepals and stamens very deciduous. Capsule about an inch long.

A common plant along fences and in waste places; doubtless introduced from Europe. It flowers from the beginning of May to October. The juice is a popular application to warts, tetters, etc., and is sometimes employed internally as a purgative and diuretic. See *Wood & Bache's U. S. Dispens. app.* 1076.

ORDER XI. FUMARIACEÆ. *DC.* THE FUMITORY TRIBE.

Calyx of 2 small deciduous sepals. Petals 4, in pairs, one or both of the outer ones spurred or sac-like at the base, the 2 inner ones callous and cohering at the apex, enclosing the anthers and stigma. Stamens 6; filaments in two parcels placed opposite the outer petals; the filaments of each set usually more or less diadelphous; middle anther of each set 2-celled; lateral one with a single cell. Ovary composed of 2 united capels, one-celled, with 2 parietal placentæ; stigmas united, often lobed or cuspidate, alternate with the inner petals. Fruit usually a 2-valved, many-seeded, pod-like capsule of one cell; rarely 1 – 2-seeded and indehiscent. Seeds somewhat reniform or lenticular, usually shining, and furnished with a cristate caruncle: albumen copious, fleshy; embryo minute, excentric. — Smooth annual or perennial, and often glaucous herbs, with watery juice. Leaves alternate, dissected, without stipules. Flowers in racemes or cymes.

Fumariaceæ are reduced to a suborder of Papaveraceæ by Lindley, Endlicher and others. The two lateral one-celled stamens in each parcel are usually regarded as half-stamens, formed by the division of the two stamens which correspond to the inner petals; the true number being only 4, one to each petal.

1. DICENTRA. *Borckh.; Endl. gen.* 4836. Diclytra, *DC.* Diclytra, *Hook.; Torr. & Gr.*

[Name from the Greek, *dis*, double, and *kentron*, a spur. The original name of Borckhausen, *Diclytra*, it appears was written incorrectly.]

Exterior petals equally saccate or spurred at the base. Capsule pod-shaped, many-seeded. Seeds lenticular, strophiolate. — Perennial herbs. Flowers (usually) on scapes: racemes simple, the pedicels furnished with a pair of opposite bracteoles, or compound with the divisions cymose.

1. DICENTRA CUCULLARIA. *Dutchman's Breeches. Breeches-flower.*

Spurs divaricate, straight and rather acute; wing of the inner petals short; raceme simple, 4 – 10-flowered. — Diclytra Cucullaria, *DC. syst.* 2. *p.* 118; *Hook. fl. Bor.-Am.* 1. *p.* 35; *Darlingt. fl. Cest. p.* 398; *Torr. & Gr. fl. N. Am.* 1. *p.* 66. D. Canadensis, *Borck.* fide *DC.* Fumaria Cucullaria, *Linn.; Michx. fl.* 1. *p.* 51; *Bot. mag. t.* 1127. Corydalis Cucullaria, *Pers. syn.* 2. *p.* 269; *Pursh, fl.* 2. *p.* 462; *Bigel. fl. Bost. p.* 263.

Rhizoma not creeping, bulbiferous; the bulbs formed of fleshy imbricated triangular scales (the thickened and persistent bases of petioles, filled with starch), mostly acuminate, reddish

externally where exposed to the air, white when subterranean. Leaves commonly 2 from each root, on petioles 4 – 6 inches long, glaucous underneath, triternately decompound; the primary and secondary divisions petiolulate; ultimate segments laciniately pinnatifid, with oblong-linear lobes, which are tipped with a small bristle. Scape usually from 5- to 7-flowered; the flowers somewhat secund, nodding, white, tinged with yellow and purple at the summit. Sepals cordate. Inner petals carinate; the keel not projecting beyond the summit. Spurs diverging almost at right angles to each other, as long as the rest of the petal. Filaments distinct; the middle one with a subulate process projecting into the cavity of the spur. Stigma compressed, reniform, obtusely 4-lobed. Capsule 15 – 20-seeded; the seeds shining, black.

Shady woods, in rich soil, particularly among rocks; common in most parts of the State. *Fl.* April. *Fr.* May. The singular form of the flowers (from which it derives its popular name) has made this plant generally known, even to persons who are unacquainted with botany.

2. DICENTRA CANADENSIS. *Squirrel Corn. Turkey Corn.*

Spurs short, rounded; wing of the inner petals projecting beyond the summit; raceme simple, 4 – 6-flowered.— Diclytra Canadensis, *DC. prodr.* 1. *p.* 126; *Torr. & Gr. fl. N. Am.* 1. *p.* 67; *Bot. mag. t.* 3033. D. eximia, *Beck, bot. p.* 223; *Darlingt. fl. Cest. p.* 399. D. eximia, *β. Hook. fl. Bor.-Am.* 1. *p.* 35. Corydalis Canadensis, *Gold. in Edin. phil. journ.* 6. *p.* 330; *Thomas in Sill. jour.* 26. *p.* 114.

Rhizoma creeping, bearing at intervals roundish yellow tubers from a third to half an inch in diameter, each marked with the scar of a fallen petiole. Leaves resembling those of the preceding species, but the ultimate segments longer and narrower; commonly only one to each scape. Scape, when the flowers are fully expanded, overtopping the leaves (5 – 6 inches high). Flowers very fragrant, cordate-ovate in the outline, about three-fourths of an inch long. Corolla greenish-white, often more or less tinged with rose-color: inner petals strongly keeled. Spurs scarcely one-third the rest of the petal, slightly incurved. Middle filament of each parcel with a callosity, but hardly a spur, at the base. Stigma reniform, more or less distinctly 4-lobed.

Rocky woods, in rich soil: rather common in the western and northern counties; but not found, hitherto, in the valley of the Hudson below Albany. *Fl.* April. *Fr.* May.

3. DICENTRA EXIMIA. *Choice Dicentra.*

Spurs short, obtuse, somewhat incurved; wings of the inner petals projecting beyond the summit; raceme compound, the branches cymulose; stigma 2-horned at the apex; leaves numerous. Diclytra eximia, *DC. syst.* 2. *p.* 109; *Torr. & Gr. fl. N. Am.* 1. *p.* 665 (suppl.). Fumaria eximia, *Ker, bot. reg. t.* 50. Corydalis formosa, *Pursh, fl.* 2. *p.* 464 (excl. Canad. *var.*), not Fumaria formosa, *Dryand.* Diclytra formosa, *Ell. sk.* 2. *p.* 177; *Thomas, in Sill. jour. l. c.; Torr. & Gr. l. c.*, not of *DC.*, nor Fumaria formosa, *Andr.*

Rhizoma scaly-bulbiferous. Leaves several, rising from the crown of the rhizoma; divisions of the lamina variable in width, but mostly oblong and incisely pinnatifid. Scape 8 – 12 inches high. Cymules several-flowered, with conspicuous, crowded purplish bracts. Flowers pendulous, reddish purple. Exterior petals attenuated upward, with the lamina somewhat spreading: wings of the inner petals projecting beyond the summit in the form of four oblong lobes. Stigma 2-lobed, with two slender approximate horns between the lobes.

Yates county, New-York (*Dr. Sartwell*). Flowering throughout the season. This beautiful plant has long been a favorite in gardens, both in this country and in Europe. It is a rare species, being chiefly confined to the high mountains of the southern States. Dr. Sartwell is the only botanist who has found it within the limits of New-York.

2. ADLUMIA. *Raf.; Endl. gen.* 4837. *CLIMBING FUMITORY.*

[Named in honor of Mr. JOHN ADLUM, a distinguished cultivator of the vine.]

Petals united into a spongy persistent monopetalous corolla, 4-lobed at the apex, bigibbous at the base. Capsule pod-shaped, linear-oblong, many-seeded. Seeds roundish-lenticular, with an obscure beak, shining, not strophiolate.— A biennial herb, climbing by the tendril-like petioles of its delicate biternately divided leaves. Flowers in supra-axillary racemose cymes.

1. ADLUMIA CIRRHOSA, *Raf.* *Climbing Fumitory.*

Raf. in New-York med. repos. 2nd hex. 5. *p.* 350, *and in Desv. journ. bot.* 1809. 2. *p.* 169; *DC. syst.* 2. *p.* 111; *Darlingt. fl. Cest. p.* 399; *Torr. & Gr. fl. N. Am.* 1. *p.* 68. Fumaria fungosa, *Willd. sp.* 3. *p.* 857. F. recta, *Michx. fl.* 2. *p.* 51. Corydalis fungosa, *Vent. choix. t.* 19; *Pursh, fl.* 2. *p.* 463; *Bigel. fl. Bost. p.* 263.

Stem climbing over shrubs and other plants to the length of 10 – 15 feet or more, branching, smooth. Leaves 3 – 6 inches long; the primary divisions distant; ultimate segments obovate-cuneiform, petiolulate: petioles twining like tendrils. Cymes compound, 5 – 20-flowered; the flowers expanding successively, pedicellate, pale-violet or nearly white. Filaments united below into a tube, distinct above. Stigma with somewhat spreading lobes. Capsule included in the marcescent corolla. Seeds 4 – 8.

Shady rocks, particularly on the banks of rivers. July – September. A very neat and elegant plant, easily cultivated, and frequently seen in gardens. It is common in the Highlands, and north to Lake Champlain, but rather rare in the western part of the State.

3. CORYDALIS. *DC. syst. 2. p. 113; Endl. gen. 4839.*

[*Corydalis* is the Greek name for Fumitory.]

Corolla with only one of the exterior petals (the posterior one) spurred at the base. Style mostly persistent: stigma 2-lobed. Capsule pod-shaped; few or many-seeded. Seeds lenticular, black and shining, strophiolate. — Racemes terminal or opposite the leaves, simple: pedicels without bracteoles.

1. CORYDALIS AUREA, *Willd.* *Golden Corydalis.*

Annual or biennial; stem diffuse; leaves somewhat glaucous, bipinnately divided; ultimate segments oblong, acute; bracts lanceolate or ovate, acuminate; pods terete, torulose.— *Willd. enum. p. 740; DC. prodr. 1. p. 128; Pursh, fl. 2. p. 463; Hook. fl. Bor.-Am. 1. p. 37; Darlingt. fl. Cest. p. 400; Torr. & Gr. fl. N. Am. 1. p. 68.* Fumaria aurea, *Ker, bot. reg. t. 66.*

Root fibrous. Stems branching, 6 – 12 inches long, slender. Leaves thin and delicate, divided into rather narrow oblong segments. Racemes terminal and opposite the leaves, or supra-axillary, 5 – 15-flowered. Flower golden yellow; the early ones (especially in shady places) 3 – 4 lines, the later three-fourths of an inch long. Bracts variable in form and size, at first longer than the pedicels, but shorter at maturity, often with one or two teeth. Petals distinct: spur incurved, about one-fourth as long as the rest of the petal. Stigma with 2 spreading lobes. Pods three-fourths of an inch long, strongly torulose. Seeds obovoid-lenticular, highly polished, with a short incurved beak, and a conspicuous membranaceous strophiole.

Rocky woods. April – September. Not rare.

2. CORYDALIS GLAUCA, *Pursh.* *Glaucous Corydalis.*

Plant erect, glaucous, annual or biennial; leaves bipinnately divided; ultimate segments cuneiform, somewhat 3-cleft; racemes often clustered; bracts linear, shorter than the pedicels; pods long, terete, scarcely torulose. — *Pursh, fl. 2. p. 463; DC. prodr. 1. p. 128; Hook. fl. Bor.-Am. 1. p. 37; Darlingt. fl. Cest. p. 605; Torr. & Gr. fl. N. Am. 1. p. 69.* Fumaria sempervirens, *Linn.; Michx. fl. 2. p. 51.* F. glauca, *Bot. mag. t. 179.*

Stem 1 – 2 feet high, more or less branching. Leaves 1 – 3 inches long; the radical ones clustered, on long petioles. Racemes 6 – 10-flowered, the flowers 6 – 7 lines in length, spreading somewhat horizontally. Calyx purple. Corolla bright rose-color, tinged with yellow and green; the spur short and obtuse. Stigma with spreading lobes. Pods an inch and a half long; the valves at length separating from the persistent placentæ. Seeds lenticular-reniform, shining, but marked with fine rugæ in a radiating manner: strophiole small and spongy.

Rocky hills and river banks; rather common. May – August. An ornamental plant.

4. FUMARIA. *Linn.; Endl. gen.* 4843. *FUMITORY.*

[Named from *fumus*, smoke; in allusion, it is thought, to its smell.]

Corolla with only one of the exterior petals obtusely spurred or gibbous at the base. Style deciduous: stigma 2-parted. Fruit at first somewhat fleshy and drupaceous, at length dry, somewhat globose or obovoid, not dehiscent, one-seeded. Seed globose-reniform, dull; without a strophiole. — Annual herbs, with finely dissected leaves, and small flowers in dense racemes.

1. FUMARIA OFFICINALIS, *Linn.* *Common Fumitory.*

Sepals ovate-lanceolate, acute, sharply notched, about the length of the globose retuse fruit; bracts much longer than the pedicels of the fruit. — *Arnott in Hook. fl. Bor.-Am.* 1. *p.* 37; *Torr. & Gr. fl. N. Am.* 1. *p.* 70.

var. diffuse or climbing; segments of the leaves broad, glaucous.—*Arnott, l. c.; Torr. & Gr. l. c.* F. media, *DC. prodr.* 1. *p.* 130. F. officinalis, *Pursh, fl.* 2. *p.* 463; *Bigel. fl. Bost. p.* 262; *Darlingt. fl. Cest. p.* 401.

Stem at first erect, at length diffuse, 8 – 12 inches long. Racemes 12 – 20-flowered. Flowers pale violet, mixed with green and purple.

Fields, road-sides and cultivated grounds; naturalized in a few places; particularly on the banks of the Hudson. May – August.

ORDER XII. CRUCIFERÆ. *Juss.* THE CRUCIFEROUS TRIBE.

Calyx of 4 deciduous sepals, which are imbricated, or very rarely valvate in æstivation; the 2 outer (anterior and posterior) corresponding to the stigmas, and often narrow; the 2 inner opposite the valves of the capsule. Corolla of 4 regular deciduous petals, with claws; the limbs spreading in the form of a cross. Stamens 6; the 2 opposite the lateral sepals shorter, and usually inserted somewhat lower than the others; the other 4 in pairs opposite the anterior and posterior sepals; anthers introrse. Torus with 2 or more green glands between the stamens and the ovary. Ovary of two united carpels, with 2 parietal placentæ which are united by a membranaceous (false) dissepiment. Stigmas 2, opposite the placentæ. Fruit a pod (called a *silique* when the length much exceeds the breadth, and a *silicle* when short and broad), 2-celled, usually several or many-seeded, dehiscent by the separation of the valves from

the persistent placentæ (rarely indehiscent). Seeds without albumen; embryo with the cotyledons folded on the radicle. — Herbs, or very rarely (never in North America) somewhat shrubby plants, with a pungent or acrid watery juice. Leaves alternate, often divided, without stipules. Flowers in racemes or corymbs, mostly without bracts to the pedicels.

CONSPECTUS OF THE TRIBES.

1. SILIQUOSÆ.

Tribe I. ARABIDEÆ. Silique usually elongated (except sometimes in *Nasturtium*), dehiscent; the valves somewhat plane: dissepiment linear. Cotyledons plane, accumbent (i. e. the radicle is applied to their edges, ○=), parallel with the septum (i. e. with their edges applied to the placentæ).

Tribe II. SISYMBREÆ. Silique longitudinally dehiscent; valves nearly plane or somewhat terete and carinate: septum linear. Cotyledons plane, incumbent (i. e. with the radicle applied to the back of one of the cotyledons, ‖○), contrary to (i. e. with the edges towards) the septum. Seeds not bordered.

Tribe III. BRASSICEÆ. Silique dehiscent; septum linear. Style often enlarged, with a seminiferous cell at the base. Seeds globose. Cotyledons incumbent, conduplicate or longitudinally plicate, with the radicle lying in the sinus (○>>).

2. SILICULOSÆ.

Tribe IV. ALYSSINEÆ. Silicle dehiscent; valves plane or convex: septum broadly oval and membranaceous. Seeds compressed, often margined. Cotyledons plane, accumbent, parallel to the septum.

Tribe V. CAMELINEÆ. Silicle dehiscent, ovoid or oblong, compressed parallel to the septum, or turgid; valves plane or convex: septum elliptical or ovate, sometimes incomplete or none. Cotyledons plane, incumbent, contrary to (i. e. their margin looking towards) the dissepiments.

Tribe VI. THLASPIDEÆ. Silicle dehiscent, compressed contrary to the very narrow septum: valves boat-shaped. Cotyledons plane, accumbent, contrary to the septum.

Tribe VII. LEPIDINEÆ. Silicle usually dehiscent, compressed contrary to the narrow septum (sometimes 1-celled); valves boat-shaped, or rarely ventricose. Cotyledons plane, incumbent, parallel to the septum.

3. LOMENTACEÆ.

Tribe VIII. CAKILINEÆ. Silique or silicle separating transversely into several 1-celled, 1-seeded joints. Seeds usually compressed, not margined. Cotyledons plane, accumbent.

Tribe IX. RAPHANEÆ. Silique or silicle indehiscent, transversely separating into one- (or few-) seeded joints. Seeds globose. Cotyledons conduplicate (as in *Brassicaceæ*).

1. SILIQUOSÆ.

TRIBE I. *ARABIDEÆ. DC.*

Silique usually elongated; the valves somewhat plane; dissepiment linear. Cotyledons plane, accumbent (i. e. the radicle applied to their edges, o =), parallel with the septum (i. e. with their edges applied to the placentæ).

CONSPECTUS OF THE GENERA.

1. NASTURTIUM. Silique nearly terete, sometimes short; valves neither nerved nor keeled. Sepals spreading. Seeds irregularly disposed in a double series.
2. BARBAREA. Silique 4-angled and somewhat 2-edged: valves nerved or keeled. Seeds in a single row.
3. TURRITIS. Silique linear, 2-edged: valves nerved or keeled. Seeds in a double row.
4. ARABIS. Silique linear, flattish: valves one-nerved in the middle. Seeds in a single row.
5. CARDAMINE. Silique linear: valves flat, generally separating elastically, without nerves. Funiculus slender.
6. DENTARIA. Silique narrowly lanceolate, tapering: valves flat, generally separating elastically, nerveless. Funiculus broad.

1. NASTURTIUM. *R. Br. in hort. Kew. (ed. 2.) 4. p. 109; Endl. gen. 4850.* CRESS.

[Name derived from the supposed effects of its acrid juices upon the muscles of the nose; *nasus tortus*, signifying a convulsed nose.]

Silique nearly terete, sometimes short so as to resemble a silicle, usually curved upward. Stigma somewhat 2-lobed. Sepals spreading, equal at the base. Seeds small, irregularly disposed in a double series, not margined. — Aquatic or sub-aquatic herbs. Leaves often pinnately divided. Flowers yellow or white.

1. NASTURTIUM PALUSTRE, *DC.* *Marsh Cress.*

Leaves pinnately lobed, clasping and ciliate at the base, smooth; the lobes confluent and toothed; root fusiform; petals as long as the sepals; siliques more or less ovoid, spreading, obtuse at each end, somewhat turgid, rather longer (sometimes shorter) than the pedicels; style very short.—*DC. syst. 2. p. 191; Hook. fl. Bor.-Am. 1. p. 39; Torr. & Gr. fl. N. Am. 1. p. 73.*

Root perennial, slender, but fusiform, with numerous fibres. Stem 12 – 18 inches high, glabrous, branching above. Leaves 2 – 3 inches long, with 4 – 6 pairs of oblong lanceolate lobes. Flowers very small, yellow. Peduncles of the fruit 2 – 4 lines long, spreading almost horizontally. Siliques 2 – 3 lines long, varying from roundish to oblong-ovoid, tipped with a very short but distinct style.

Wet gravelly places, particularly along rivers. June – August. A common coarse plant, found in many parts of the State.

2. NASTURTIUM HISPIDUM, *DC.* *Hispid Cress.*

Plant hispidly pubescent; leaves pinnatifidly lobed, or runcinate-pinnatifid; the lobes rather obtusely toothed; siliques (minute) ovoid, tumid, pointed with the distinct style, scarcely half as long as the somewhat spreading pedicels; petals rather shorter than the calyx.—*DC. syst. 2. p. 201; Torr. & Gr. fl. N. Am. 1. p. 74.* Sisymbrium hispidum, *Poir. enc. 5. p. 161.*

Root perennial, or enduring at least three seasons. Stem 2 – 4 feet high, much branched towards the summit, clothed (as also the leaves) with villous but rough pubescence. Leaves 2 – 4 inches long, and nearly an inch wide, more or less deeply pinnatifid, with from 4 to 6 pairs of lobes. Racemes very numerous, panicled. Flower smaller than in the preceding species, yellow. Siliques scarcely more than a line long, slightly compressed. Style about half the length of the fruit; stigma capitate. Pedicels 2 – 3 lines long.

Wet places, along rivulets. Abundant on Murderer's creek, near Newburgh; also in Phillipstown, Putnam county, where it was found many years ago by *Dr. Barratt.* These are the only known localities of the plant in our State. It flowers from July to August.

3. NASTURTIUM NATANS, *DC.* *Floating Cress.*

Emersed leaves oblong-linear, entire; immersed ones cut into many capillary segments; petals scarcely longer than the calyx; siliques obovate-globose.—*DC. syst.* 2. *p.* 198; *Deless. ic.* 2. *t.* 15.

var. *Americanum*, Gray.

Emersed leaves serrate; petals (white) twice as long as the calyx; siliques obovate; style as long as the ovary and half as long as the fruit. — *Gray in ann. lyc. New-York*, 3. *p.* 223; *Torr. & Gr. fl. N. Am.* 1. *p.* 75. N. natans, *Hook. fl. Bor.-Am.* 1. *p.* 39; *Beck, bot. p.* 32.

In Oneida lake (*Dr. Gray, Dr. Knieskern*); also near Ogdensburgh, St. Lawrence county *Dr. Crawe*). Flowers in July. One of the rarest plants in the United States, but not remarkable for anything but its peculiar habit, being the only aquatic species of the genus.

2. BARBAREA. *R. Brown in hort. Kew.* (ed. 2.) 4. *p.* 109; *Endl. gen.* 4851.

WINTER CRESS.

[So called because the plant was formerly dedicated to St. BARBARA.]

Silique 4-angled or somewhat 2-edged. Seeds in a single series. Calyx equal at the base. — Leaves lyrately pinnatifid. Flowers yellow.

1. BARBAREA VULGARIS, *R. Brown.* *Scurvy Grass.*

Lower leaves lyrate, the terminal lobe roundish; upper ones obovate, toothed or pinnatifid at the base; silique 4-angled, with the sides somewhat convex, acuminate with the style. — *DC. prodr.* 1. *p.* 140; *Hook. fl. Bor.-Am.* 1. *p.* 39; *Darlingt. fl. Cest. p.* 381; *Torr. & Gr. fl. N. Am.* 1. *p.* 75. Erysimum Barbarea, *Linn.; Willd. sp.* 3. *p.* 509.

Root perennial, fibrous. Stem 1 – 2 feet high, glabrous, branched above. Leaves 2 – 4 inches long; the terminal lobe of the lower ones very large; segments oblong. Flowers in dense racemes, bright yellow. Siliques about an inch long; the pointed style about a line and a half long.

Common in low wet grounds, particularly along rivulets; flowering from May to October. Probably introduced. The early leaves are sometimes eaten as a salad. It is the *Common Winter Cress*, and is also known by the name of *Yellow Rocket.*

3. TURRITIS. *Dill.; Endl. gen.* 4853. *TOWER MUSTARD.*

[Named from *turris*, a tower; from the pyramidal form of the plant.]

Silique linear; the valves plane. Seeds in a double series in each cell. Flowers white or rose-color.

1. TURRITIS STRICTA, *Graham.* *Straight Tower Mustard.*

Plant glabrous; stem straight and erect; stem leaves linear-lanceolate, clasping and sagittate, sparingly toothed; radical ones petioled, narrowly spatulate, remotely and sharply denticulate; siliques linear, elongated, and (like the flowers) strictly erect, pointed with the very short style. — *Graham in Edin. new phil. jour.* (1829), *p.* 7; *Hook. fl. Bor.-Am.* 1. *p.* 40; *Torr. & Gr. fl. N. Am.* 1. *p.* 79. T. glabra, *β.? Torr. & Gr. l. c. p.* 78.

Root biennial. Stem 1 – 2 feet high, terete, simple. Leaves about an inch long; the cauline ones erect. Flowers in a terminal raceme, which is elongated in front. Pedicels of the fruit 3 – 5 lines long. Silicle 2 – 3 inches long, and scarcely more than half a line wide. Seeds imperfectly two-rowed when young, but at maturity nearly as broad as the dissepiment, distinctly winged; even then, however, the double row can be perceived: funicle slender.

On rocks, Watertown, Jefferson county, where it was first found by *Dr. Crawe*. Lebanon, Chenango county (*Dr. Douglass*). May.

This plant was described as a variety of *T. glabra* in the Flora of N. America, but we had not then seen New-York specimens in fruit, neither had we an opportunity of comparing it with *T. stricta* of Graham. As intimated in the Supplement to the Flora (p. 666), there can now be little doubt of its being Graham's plant.

4. ARABIS. *Linn.; Endl. gen.* 4854. *WALL CRESS.*

[Etymology uncertain; but the name is supposed to allude to the Arabic origin of the original species of the genus.]

Silique linear, plane: valves 1-nerved in the middle. Seeds in a single series in each cell, oval or orbicular, compressed. Flowers white, rarely rose-color.

* *Seeds immarginate, or with only a narrow margin.*

1. ARABIS HIRSUTA, *Scop.* *Hairy Wall Cress.*

Stem erect; leaves toothed or somewhat entire, and (like the stem) hirsute with a branched pubescence; radical ones oblong-ovate, petioled or sessile; cauline ones oblong or lanceolate, somewhat clasping, mostly auricled at the base, or somewhat sagittate; siliques numerous, erect. — *DC. prodr.* 1. *p.* 144; *Hook. fl. Bor.-Am.* 1. *p.* 42; *Darlingt. fl. Cest. p.* 382; *Torr. & Gr. fl. N. Am.* 1. *p.* 80. A. sagittata, *DC. prodr.* 1. *p.* 143. Turritis hirsuta, *Linn.; Willd. sp.* 3. *p.* 543.

Root biennial. Stem 12 – 18 inches high, simple, or branched at the base, often smooth on the upper part. Radical leaves an inch or more long, and 3 – 5 lines wide, more or less distinctly toothed. Flowers greenish-white, when fully expanded about 3 lines in diameter. Siliques straight, 1 – 2 inches long, tipped with the nearly sessile stigma. Seeds with a narrow margin.

Rocky places; rare. May.—In the young state, and when smoother than usual, this species often resembles *A. lævigata*, but differs in its smaller size, proportionably wider leaves, and in its pubescence of which more or less is found on the leaves and lower part of the stem. In fruit they are easily distinguished.

2. ARABIS DENTATA, *Torr. & Gr.* *Toothed Wall Cress.*

Plant more or less rough with a stellate-pubescence; radical leaves obovate, tapering at the base into a petiole which is as long as the lamina, irregularly dentate with sharp salient teeth; cauline ones oblong, clasping; flowers minute; petals spatulate, scarcely longer than the calyx; siliques short, spreading, on very short pedicels, pointed with the nearly sessile stigma; stem branched from the base.— *Torr. & Gr. fl. N. Am.* 1. *p.* 80. Sisymbrium dentatum, *Torr. in Short's 3rd suppl. cat. pl. Kentucky.*

Root annual. Plant a foot or more in height: the pubescence, particularly of the under surface of the leaves, short and rather scabrous. Stem slender, often decumbent at the base. Radical leaves 2 inches long and three-quarters of an inch wide; cauline ones auriculate at the base, irregularly toothed. Flowers scarcely 2 lines long. Sepals and the very short pedicels, hirsute. Petals dusky white. Silique an inch long; valves somewhat convex. Seeds slightly margined. Radicle long and slender, distant from the accumbent cotyledons.

Near Utica (*Dr. Gray*). May. A rather common species in the western States.

3. ARABIS LYRATA, *Linn.* *Lyre-leaved Wall-Cress.*

Stem branching from the base; radical leaves lyrate-pinnatifid and somewhat hairy; cauline ones linear, or spatulate, entire, and with the stem smooth; siliques rather erect, nearly straight; radicle slightly dorsal.— *Pursh, fl.* 2. *p.* 327; *DC. prodr.* 1. *p.* 146; *Torr. & Gr. fl. N. Am.* 1. *p.* 81. Sisymbrium arabidoides, *Hook. fl. Bor.-Am.* 1. *p.* 63. *t.* 1; *Darlingt. fl. Cest. p.* 387.

Root biennial. Stems usually divided to the root, or rather several from one root, 4 – 12 inches high, at first erect, but at length much branched and diffuse. Radical leaves of the young plant in a circular cluster, 1 – 2 inches long, obovate in the outline, usually lyrate-pinnatifid, with rounded and mostly entire lobes, but often only toothed. Flowers about five lines in diameter, white or rarely pale purple. Petals obovate. Siliques about an inch and a half long, very slender; pedicels about one-fourth the length of the siliques. Seeds without a border. Cotyledons flat, ovate; the radicle lying along the edge of one of them, so as to be nearly accumbent.

Common on rocks; flowering in April and May, and, in shady situations, sometimes until August.

** *Seeds with a broad winged margin.*

4. ARABIS LÆVIGATA, *DC.* *Smooth Wall Cress.*

Erect; whole plant very smooth, and glaucous; radical leaves obovate, acutely toothed; cauline leaves sessile; the lower ones lanceolate, sagittate, sparingly toothed; uppermost linear, entire; flowers somewhat spreading; siliques very long and narrow, recurved-pendulous. — *DC. syst.* 2. *p.* 237; *Spreng. syst.* 2. *p.* 892; *Darlingt. fl. Cest. p.* 382; *Torr. & Gr. fl. N. Am.* 1. *p.* 82. A. pendula, *Nutt. gen.* 2. *p.* 70, not of *Linn.* Turritis lævigata, *Muhl. in Willd. sp.* 3. *p.* 543; *Pursh, fl.* 2. *p.* 438.

Biennial. Stem 1 – 3 feet high. Radical leaves usually of a purplish color, especially on the under surface, often broadly obovate, and less than an inch in length, with long petioles, but commonly 1 – 2 inches in length, and either sessile or only attenuated at the base; cauline leaves 2 – 4 inches long and about half an inch wide; the lower ones, as well as those at the root, usually with remote salient teeth. Flowers about 2½ lines long. Petals cuneiform, nearly white, or ochroleucous, scarcely longer than the greenish-yellow calyx. Siliques 2 – 3 inches long and less than a line in breadth, somewhat tortuous; the pedicels 5 – 7 lines long. Seeds as broad as the septum, conspicuously winged: funiculus adherent at the base.

In rocky woods and on banks of rivers. May. *Fr.* June. Common in most parts of the State.

5. ARABIS CANADENSIS, *Linn.* *Sickle-pod. Turkey-pod.*

Erect; leaves oblong-lanceolate, sessile, attenuate at each end, remotely toothed; pedicels villous, more than twice the length of the calyx, at length recurved; siliques pendulous, falcate, pointed with the distinct style; margin of the seed very broad.—*DC. prodr.* 1. *p.* 147; *Ell. sk.* 2. *p.* 148; *Deless. ic.* 2. 28; *Darlingt. fl. Cest. p.* 383. A. falcata, *Michx. fl.* 2. *p.* 31; *Pursh, fl.* 2. *p.* 437; *Bigel. fl. Bost. p.* 251.

Root biennial. Stem 2 – 3 feet high, smooth above, pubescent below. Leaves 2 to 4 inches long, usually more or less pubescent with simple hairs; sometimes nearly glabrous; the lowest coarsely toothed or lyrate, attenuated at the base into a petiole. Raceme elongated; the pedicels arillous, even in fruit, spreading, at length recurved. Flowers about 2 lines long. Sepals yellowish or rarely pale purple, hispid. Petals white, oblong-linear, twice the length of the calyx. Siliques 2 – 3 inches long and 1½ line broad, ancipital. Seeds 20 – 25 in each cell, their broad membranaceous margins overlapping one another. Funiculus adhering to the septum.

Rocky woods and hill sides. *Fl.* June. *Fr.* August. A well characterized species, easily known by its hairy pedicels and broad falcate pendulous siliques.

5. CARDAMINE. *Linn.; Endl. gen.* 4859. *BITTER CRESS.*

[Named from the Greek, *cardia*, the heart, and *damao*, to fortify; in allusion to its supposed strengthening qualities.]

Silique linear; valves plane, nerveless, usually dehiscing elastically. Seeds ovate, rarely bordered: funiculus slender. — Leaves petioled. Flowers white or pale purple.

1. CARDAMINE RHOMBOIDEA, *DC.* *Spring Cress.*

Root usually tuberiferous; stem smooth, usually erect or assurgent, flexuous; leaves undivided; radical ones cordate-orbicular or broadly ovate, entire or repandly toothed, on long petioles; lower cauline ones rhomboid-ovate, sinuately toothed, on short petioles; upper ones sessile, lanceolate-oblong; silique pointed with the subulate style; stigma conspicuous.—*DC. syst.* 2. *p.* 246; *Hook. bot. misc.* 3. *p.* 239. *t.* 108; *Darlingt. fl. Cest. p.* 384. C. rotundifolia, *var. α. Torr. & Gr. fl. N. Am.* 1. *p.* 83. Arabis rhomboidea, *Pers. syn.* 2. *p.* 204; *Nutt. gen.* 2. *p.* 70; *Ell. sk.* 2. *p.* 149; *Bigel. fl. Bost. p.* 252. A. tuberosa, *Pers. l. c.* A. bulbosa, *Muhl. cat. p.* 63.

var. *purpurea:* stem erect, simple, pubescent; leaves somewhat fleshy, the radical ones roundish-cordate or reniform; flowers deep rose-color or purple. — C. rotundifolia, var. *β. Torr. & Gr. l. c.* C. rotundifolia, *Hook. fl. Bor.-Am.* 1. *p.* 44. Arabis Douglassii, *Torr. in Sill. jour.* 4. *p.* 63.

Root usually producing small white clustered tubes; but sometimes wholly fibrous. Stem 9 – 15 inches high, at first erect, but at length often assurgent; in cold springy situations, prostrate and somewhat diffuse. Radical leaves ½ – 1 inch in diameter; cauline ones 1 – 2 inches long, varying from entire to strongly and sharply toothed. Racemes 10 – 20-flowered; the flowers nearly half an inch in diameter, shorter than their pedicels. Sepals greenish-yellow, with a white margin. Petals obovate-cuneate; white in the more common form, deep rose-color or purple in the var. *purpurea.* Pedicels of the fruit 1 – 1½ inch long, smooth in the white-flowered var.; pubescent in the purple. Ripe silique of the former not seen; in the latter about an inch and a half in length, and nearly a line broad, with a long tapering point, and tipped with the distinct capitate-bilobed stigma. Seeds few, broadly ovate, not margined.

Wet meadows and about shady springs. The white-flowered form is common, except, in the western part of the State, it is generally replaced by the purple variety, though the two varieties sometimes grow in the same situation. The former begins to flower in April, but the latter not till the middle of May. The true *C. rotundifolia* of Michaux, proves to be distinct from *C. rhomboidea*, and has been recently described by Dr. Gray in Silliman's journal, vol. 42. p. 30. Numerous specimens of the former, collected last summer by Mr. Buckley in the high mountains of North-Carolina (where Michaux discovered it), have all the leaves petioled, and the radical or lower cauline ones trifoliolate, the terminal leaflet very large and reniform-cordate, lateral ones much smaller, ovate or cordate. I am not yet convinced, however, that Dr. Darlington's *C. rotundifolia* is the same as the North-Carolina plant.

2. CARDAMINE PRATENSIS, *Linn.* *Common Bitter Cress. Cuckoo-flower.*

Stem erect or decumbent; leaves pinnately 7 – 13-foliolate; leaflets mostly entire, often petiolulate, those of the radical leaves roundish, of the cauline ones oblong or linear; style short and thick; stigma capitate.— *Pursh, fl.* 2. *p.* 440; *DC. prodr.* 1. *p.* 151; *Hook. fl. Bor.-Am.* 1. *p.* 45; *Torr. & Gr. fl. N. Am.* 1. *p.* 84.

Root perennial, fibrous. Plant smooth. Stem 12 – 18 inches high, simple. Radical and lower cauline leaves petiolate; leaflets 6 – 8 lines long, sparingly toothed or entire; those of the uppermost ones often scarcely a line broad. Flowers rather more than half an inch in diameter, white or pale rose-color. Siliques erect, above an inch long.

Swamps in the western part of the State, particularly in Oneida county. *Fl.* Latter part of April to the beginning of June.— This appears to be identical with the European plant, and is undoubtedly indigenous.

3. CARDAMINE HIRSUTA, *Linn.* *Water Cress.*

Leaves pinnate, or lyrately pinnatifid; leaflets of the radical leaves roundish, petiolulate, of the cauline ones oblong or linear, sparingly toothed or entire; petals (small), oblong-cuneiform, about twice the length of the calyx; style short or none; stigma minute; racemes nearly erect or somewhat patulous.— *DC. prodr.* 1. *p.* 152; *Hook. fl. Bor.-Am.* 1. *p.* 45; *Darlingt. fl. Cest. p.* 385; *Torr. & Gr. fl. N. Am.* 1. *p.* 85. C. Pennsylvanica, *Muhl. cat. p.* 63; *Willd. sp.* 3. *p.* 486; *DC. l. c.*; *Ell. sk.* 2. *p.* 144; *Bigel. fl. Bost. p.* 253.

var. *Virginica:* leaflets with a single tooth on one or both sides; racemes strictly erect.— *Torr. & Gr. l. c.* C. Virginica, *Michx. fl.* 2. *p.* 28, *not of Linn.; DC. l. c.*

Root biennial, fibrous. Stem 4 – 18 inches high, smooth, or rarely with a sparse and short pubescence. Leaves with 2 – 6 pairs of leaflets. Flowers scarcely more than 2 lines long (in the *var.* much smaller), white, or sometimes with a tinge of purple. Siliques about an inch long, nearly 3 times the length of their pedicels; in the common form of the plant, especially when growing in shady situations, somewhat patulous. Seeds oblong, not margined.

Wet places, particularly about springs, and in small streams of water; the *var.* on rocks, often in dry situations. *Fl.* May – June. *Fr.* July. A common plant, very variable in size and in the form of its leaves. It is now generally considered as identical with the *C. hirsuta* of Europe, which is also extremely variable, but I have never seen ours so hairy as some of my European specimens.

6. DENTARIA. *Linn.; Endl. gen.* 4861. *TOOTH-WORT.*

[So named from *dens*, a tooth; the root or rhizoma of some species being toothed with projecting angles.]

Silique lanceolate, with a long tapering style; the valves flat and without a prominent nerve, often opening elastically: placentæ not winged. Seeds ovate, not bordered, in a single series; funiculi dilated. — Perennial herbs. Rhizoma horizontal, fleshy, often irregularly toothed. Leaves ternately, palmately, or pinnately divided; radical ones (when present) on long petioles; cauline ones (often 3) near the middle of the stem or scape, verticillate or alternate. Flowers white or purple.

1. DENTARIA LACINIATA, *Muhl.* *Common Tooth-wort.*

Rhizoma moniliform; cauline leaves 3, on short petioles usually verticillate, ternately parted; segments incised or acutely serrate-toothed, the lateral ones lobed. — *Muhl. in Willd. sp.* 3. *p.* 479; *DC. prodr.* 1. *p.* 155; *Ell. sk.* 2. *p.* 144; *Bart. fl. Amer. Sept.* 3. *t.* 72; *Bigel. fl. Bost. p.* 254; *Hook. fl. Bor.-Am.* 1. *p.* 46; *Darlingt. fl. Cest. p.* 385; *Torr. & Gr. fl. N. Am.* 1. *p.* 87. D. concatenata, *Michx. fl.* 2. *p.* 30.

Rhizoma consisting of 2 – 3 or more yellowish-white oblong tubers, connected by a neck or fibre, of a pungent taste like horse-radish. Stems or scapes 6 – 12 inches high, erect, simple, smooth below, slightly pubescent above. Cauline leaves verticillate towards the summit of the stem; the segments lanceolate, variously cut and toothed; radical leaves sometimes wanting, more cut than those of the stem. Common peduncle 3 – 4 inches long. Flowers pale purple or nearly white. Petals 6 – 8 lines long, obovate-cuneiform. Silique about an inch long, of which the tapering style forms more than one-third.

Rich shady soils, particularly along rivers. Middle of April to the beginning of May. *Fr.* June.

2. DENTARIA DIPHYLLA, *Michx.* *Pepper-root.*

Rhizoma elongated, toothed; cauline leaves 2, ternately divided; segments ovate or oblong, unequally and incisely toothed. — *Michx. fl.* 2. *p.* 30; *Pursh, fl.* 2. *p.* 438; *Nutt. gen.* 2. *p.* 66; *Bot. mag. t.* 1465; *DC. prodr.* 1. *p.* 169; *Hook. fl. Bor.-Am.* 1. *p.* 46; *Torr. & Gr. fl. N. Am.* 1. *p.* 87.

Plant 6 – 10 inches high. Rhizoma creeping extensively, often branched, marked on two sides with projecting teeth (the swollen bases of former petioles?) from the axils of which the new petioles arise. Leaves opposite, or closely approximate above the middle of the stem; petioles about an inch long; leaflets 1 – 2½ inches long and 1 – 1½ inch wide, nearly sessile, or distinctly petiolulate; radical leaves on long petioles. Flowers larger than in the preceding species, yellowish white or very pale purple; pedicels spreading, the lower ones about an inch long. Siliques an inch long; the pointed style constituting one-third or more of the entire fruit.

Shady woods, in rich soil; more common than the preceding in the interior of the State. May. — The plant is well known on account of its singular and pungent rhizoma.

3. DENTVRIA MAXIMA, *Nutt.* *Large Tooth-wort.*

Stem tall; leaves 5 – 7, alternate, remote, the margin a little roughened; leaflets somewhat oval, incisely and acutely toothed; lateral ones lobed; (flowers pale purple.) — *Nutt. gen. p.* 66; *DC. prodr.* 1. *p.* 155; *Torr. & Gr. fl. N. Am.* 1. *p.* 87.

Stem often nearly two feet high. Tubers concatenate (*Nutt.*).

Western part of the State of New-York (*Nuttall*). This must be an extremely rare plant, as I am not aware of its having been found by any botanist except its discoverer.

TRIBE II. *SISYMBREÆ. DC.*

Silique longitudinally dehiscent; valves nearly plane, or somewhat terete and carinate: septum linear. Cotyledons plane, incumbent (i. e. *with the radicle applied to the back of one of the cotyledons,* ||○), *contrary to* (i. e. *with the edges towards*) *the septum. Seeds not bordered.*

7. SISYMBRIUM. *Allioni; Endl. gen.* 4906. *HEDGE MUSTARD.*

[An ancient Greek name applied to some plant believed to be of this genus.]

Silique somewhat terete. Stigmas 2, somewhat distinct, or connate and capitate. Sepals equal at the base. Seeds ovate or oblong. Cotyledons sometimes oblique. — Herbs of various habit. Flowers small, mostly yellow or white.

§ 1. VELARUM, *DC.* *Siliques subulate, terminated with a short style: pedicels very short, thickened and appressed to the axils after flowering.*

1. SYSYMBRIUM OFFICINALE, *Scop.* *Common Hedge Mustard.*

Leaves runcinate, and, as well as the stem, hairy; flowers very small (yellow). *DC. prodr.* 1. *p.* 191; *Hook. fl. Bor.-Am.* 1. *p.* 61; *Darlingt. fl. Cest. p.* 386. Erysimum officinale, *Linn.; Michx. fl.* 2. *p.* 31; *Pursh, fl.* 2. *p.* 436; *Ell. sk.* 2. *p.* 148; *Bigel. fl. Bost. p.* 253.

Annual. Stem more or less hairy. 1 – 2½ feet high, with numerous, spreading, somewhat curved branches. Upper leaves somewhat hastate. Racemes elongated. Petals a little longer than the sepals. Siliques 6 – 8 lines long, tapering to a point. Seeds oval, about 4 in each cell.

Road-sides and waste places: introduced from Europe. Flowers from May to September. This plant has long been reputed as a diuretic and expectorant, but its powers are probably very feeble.

§ 2. ARABIDOPSIS, *DC.* *Silique linear, compressed, somewhat terete: stigma nearly sessile: flowers white (or rose-color): peduncles usually short.*

2. SISYMBRIUM THALIANA, *Gay.* *Wall Cress. Mouse-ear Cress.*

Annual: stems often many from one root, rather naked, branching above, erect; leaves (and lower part of the stem) hairy, sparingly toothed; radical ones ovate-oblong or spatulate-oblong, somewhat petioled; siliques erect-spreading, rather longer than the pedicels. — *Gay, in ann. sci. nat.* 7. *p.* 399; *Hook. fl. Bor.-Am.* 1. *p.* 63; *Darlingt. fl. Cest. p.* 388; *Torr. & Gr. fl. N. Am.* 1. *p.* 93. Arabis Thaliana, *Linn.; Eng. bot. t.* 901; *Pursh, fl.* 2. *p.* 437; *DC. prodr.* 1. *p.* 144. A. parviflora, *Raf. in Amer. month. mag.* 1. *p.* 43.

Stem 6 - 15 inches high, slender, terete. Leaves mostly radical in a circular cluster, scarcely an inch long; those of the stem smaller, stellately hairy, especially on the upper surface. Flowers scarcely two lines long. Petals spatulate-oblong, more than twice the length of the calyx. Pedicels of the fruit filiform, 4 – 5 lines long, spreading. Siliques 6 – 8 lines long, moderately compressed, with about 20 oval seeds in each cell, arranged in a single series.

In sandy fields on rocks. May. Apparently native, and identical with the European species.

8. ERYSIMUM. *Linn.; Endl. gen.* 4908.

TREACLE MUSTARD.

[From the Greek, *eruo*, to cure; on account of its supposed medicinal powers.]

Silique 4-sided. Calyx closed. Seeds not margined: cotyledons oblong, plane. — Herbs, mostly biennial, of various habit. Flowers yellow or rarely white.

§. ERYSIMASTRUM, *DC.* *Style short or scarcely any: calyx deciduous: leaves neither cordate nor clasping: flowers distinctly pedicellate.*

1. ERYSIMUM CHEIRANTHOIDES, *Linn.* *Worm-seed Treacle Mustard.*

Somewhat scabrous with a minute oppressed pubescence; leaves lanceolate, denticulate or entire; siliques erect, nearly twice the length of the spreading pedicels; stigma small, entire, nearly sessile.—*Pursh, fl.* 2. *p.* 436; *DC. prodr.* 1. *p.* 198; *Hook. fl. Bor.-Am.* 1. *p.* 64; *Torr. & Gr. fl. N. Am.* 1. *p.* 94. E. parviflorum, *Pers. syn.* 2. *p.* 199; *Nutt. gen.* 2. *p.* 16.

Root biennial, fusiform. Stem 1 – 2½ feet high, sparingly branched. Pubescence 3 – 4-parted. Leaves 1 – 2 inches long and 4 – 6 lines wide. Flowers small, yellow. Siliques about an inch long, pointed with a very short style.

Along streams in the western part of the State. July – September. A native also of Europe.

TRIBE III. *BRASSICEÆ. DC.*

Silique dehiscent: septum linear. Style often enlarged, with a seminiferous cell at the base. Seeds for the most part globose. Cotyledons incumbent, conduplicate or longitudinally plicate, with the radicle lying in the sinus (○>>).

9. SINAPIS. *Tourn.; Endl. gen.* 4950. *MUSTARD.*

[Name from the Greek, *sinapi*, which again is said by De Theis to be derived from the Celtic *nap*, a turnip or cabbage.]

Silique somewhat terete; valves nerved. Style short, acute. Seeds somewhat globose, in a single series. Calyx spreading. — Biennial or annual (rarely perennial) herbs. Leaves usually lyrate, incised or pinnatifid. Flowers yellow, in elongated racemes.

1. SINAPIS NIGRA, *Linn.* *Black Mustard.*

Siliques appressed to the peduncle, glabrous, somewhat 4-cornered; style short (not rostrate): lower leaves lyrate; upper ones lanceolate, entire.—*DC. prodr.* 1. *p.* 218; *Bigel. fl. Bost. p.* 254; *Beck, bot. mid. and north. States, p.* 33; *Torr. compend. p.* 252; *Eng. bot. t.* 969; *Darlingt. fl. Cestr. p.* 390; *Torr. & Gr. fl. N. Am.* 1. *p.* 99.

Annual. Stem 3 – 6 feet high, smooth, with numerous spreading branches. Lower leaves large, scabrous; cauline ones smooth. Calyx yellow. Siliques about three-fourths of an inch long, slightly torulose, pointed with the short and slender 4-sided style. Seeds dark brown, very acrid.

Fields and waste places. June – August. Naturalized in many parts of the State. The seeds afford mustard, so well known as a stimulating condiment.

2. SINAPIS ARVENSIS, *Linn.* *Wild Mustard. Charlock.*

Siliques smooth, many-angled, torose, about three times the length of the slender somewhat ancipital style; stem and leaves more or less hairy. — *DC. prodr.* 1. *p.* 219; *Eng. bot. t.* 1748; *Torr. & Gr. fl. N. Am.* 1. *p.* 99.

Annual. Plant 2 – 3 feet high, somewhat diffusely branched, sparsely hispid with short retrose stiff hairs. Lower leaves 6 inches or more in length, lyrately pinnatifid; upper ones oblong-ovate, repandly toothed. Flowers as large as in the common turnip, bright yellow. Pedicels of the fruit 2 – 3 lines long, thick and rigid. Siliques about an inch and a quarter in length, pointed with the long stout style, strongly nerved; septum zigzag, from the large round seeds pressing it alternately into the two cells.

Common in wet meadows and fields in the western part of the State: a noxious weed, introduced from Europe. June – August.

2. SILICULOSÆ.

TRIBE IV. *ALYSSINEÆ.*

Silicle dehiscent; valves plane or convex; septum broadly oval and membranaceous. Seeds compressed, often margined. Cotyledons plane, accumbent, parallel to the septum.

10. DRABA. *Linn.; Endl. gen.* 4880. *WHITLOW-GRASS.*

[Named from the Greek, *drabe*, acrid; from taste of the leaves in many of the genus.]

Silicle oval or oblong; valves plane or convex. Seeds numerous, not margined. Calyx equal. Petals entire or bifid. Stamens all toothless. — Herbs of various habit. Flowers white or yellow.

§ 1. DRABA, *DC. Petals entire.*

1. DRABA ARABISANS, *Michx.* *Arabis-like Whitlow-grass.*

Perennial: whole plant slightly and stellately pubescent; stem leafy, simple, or branching from the base; leaves sparingly and acutely toothed; radical ones cuneiform-lanceolate, the cauline oblong; silicles smooth, lanceolate-oblong, contorted, pointed with a very short but distinct style; petals (white) about twice as long as the sepals.—*Michx. fl.* 2. *p.* 28; *DC. prodr.* 1. *p.* 70; *Hook. fl. Bor.-Am. p.* 55; *Torr. & Gr. fl. N. Am.* 1. *p.* 106. D. incana, *β.* glabriuscula, *Gray in ann. lyc. N. York*, 3. *p.* 223.

Stems usually several from one root, 6 – 12 inches high. Radical leaves numerous, forming a circular tuft, about an inch long, acute, with a long tapering base, 1 – 2-toothed or entire; cauline ones slightly clasping, furnished with one or two (rarely more) very acute spreading teeth on each side. Flowers about three lines in diameter. Petals broadly ovate. Raceme of fruit 4 – 6 inches long. Silicle half an inch long, and nearly 2 lines wide, nearly erect. Pedicels about half as long as the silicles, often cohering at the base by pairs. Seeds 7 – 10 in each cell.

Rocky borders of lakes and rivers in the northern part of the State. *Fl.* May – June. *Fr.* July.

2. DRABA CAROLINIANA, *Walt.* *Carolina Whitlow-grass.*

Annual. Stem leafy and hispid at the base, naked and smooth above, leaves ovate; entire, hispid; silicles linear, smooth, somewhat corymbed, longer than their pedicels; style almost none; (flowers white.)— *Walt. fl. Car. p.* 174; *Ell. sk.* 2. *p.* 138; *DC. prodr.* 1. *p.* 171; *Torr. & Gr. fl. N. Am.* 1. *p.* 109. D. hispidula, *Michx. fl.* 2. *p.* 28; *Pursh, fl.* 2. *p.* 433. Arabis rotundifolia, *Raf. in Amer. month. mag.* 2. *p.* 43.

Plant 2 – 5 inches high; the pubescence branched. Stems commonly several from one root, branching from near the base; the branches widely spreading. Leaves 4 – 5 lines long, the radical and lower cauline ones abruptly narrowed at the base. Flowers nearly twice as

large as in *D. verna*. Petals oblong, twice the length of the sepals. Silicles 4 – 6 lines long; cells 20 – 30-seeded.

Sandy fields on the Island of New-York; rare. April – May.

§ 2. EROPHILA, *DC.* *Petals 2-parted.*

3. DRABA VERNA, *Linn.* *Common Whitlow-grass.*

Scapes naked; leaves lanceolate, somewhat toothed; silicles elliptical.— *Eng. bot. t.* 586; *Pursh, fl.* 2. *p.* 433; *Bigel. fl. Bost. p.* 250; *Bart. fl. Am. Sept.* 3. *p.* 49 *to* 88. *f.* 2; *Torr. & Gr. fl. N. Am.* 1. *p.* 109. D. verna, *β.* Americana, *Pers. syn.* 2. *p.* 190. Erophila Americana *and* vulgaris, *DC. prodr.* 1. *p.* 173. E. vulgaris, *Hook. fl. Bor.-Am.* 1. *p.* 56. E. vulgaris, *var.* Americana, *Darlingt. fl. Cest. p.* 378.

Annual. Scapes 1 – 5 inches high, often several from one root, and assurgent. Leaves 4 – 6 lines long. Flowers minute, white. Petals cleft more than half way to the base. Pedicels of the fruit 6 – 8 lines or more in length. Silicles 3 – 4 lines long; style very short. Seeds numerous.

Fields and hill-sides; common. March and April. Perhaps introduced.

TRIBE V. *CAMELINEÆ. DC.*

Silicle dehiscent, ovoid or oblong, compressed parallel to the septum, or turgid; valves plane or convex: septum elliptical or ovate, sometimes incomplete or none. Cotyledons plane, incumbent, contrary to (i. e. *their margins looking towards*) *the septum.*

11. CAMELINA. *Crantz; Endl. gen.* 4919. *GOLD OF PLEASURE.*

[Named from the Greek *chamai*, dwarf, and *linon*, flax; from some resemblance of the plant to ordinary flax.]

Silicle obovoid or somewhat globose; valves ventricose, dehiscing with a part of the style; cells many-seeded. Style filiform. Seeds oblong, not bordered. Flowers small, yellow.

1. CAMELINA SATIVA, *Crantz.* *Common Gold of Pleasure. Wild Flax.*

Silicles obovoid-pyriform; style rather long; stigma simple; leaves lanceolate, sagittate, nearly entire. — *DC. prodr.* 1. *p.* 201; *Darlingt. fl. Cest. p.* 379; *Torr. & Gr. fl. N. Am.* 1. *p.* 110. Myagrum sativum, *Linn.* Alyssum sativum, *Smith, Eng. bot. t.* 1254.

Annual. Stem 1½ – 3 feet high, paniculate at the summit, somewhat pubescent. Leaves usually roughish-pubescent. Silicles about one-fourth of an inch long, on slender pedicels which are from half an inch to an inch in length.

Fields and cultivated grounds; introduced with grain from Europe. Flowers in May and June.

TRIBE VI. *THLASPIDEÆ. DC.*

Silicle dehiscent, compressed contrary to the very narrow septum; valves boat-shaped. Cotyledons plane, accumbent, contrary to the septum.

12. THLASPI. *Dill.; Endl. gen.* 4885. *PENNY CRESS.*

[From the Greek, *thlao* to flatten; probably from the compressed form of its seed-vessel.]

Silicle emarginate at the apex; valves winged on the back; cells 2- or many-seeded. Petals equal. Calyx equal at the base. — Flowers white.

1. THLASPI ARVENSE, *Linn.* *Mithridate Mustard, or Penny Cress.*

Leaves oblong, toothed; silicles orbicular-obovate, shorter than the pedicels; style scarcely any.— *Pursh, fl.* 2. *p.* 435; *DC. prodr.* 1. *p.* 175; *Hook. fl. Bor.-Am.* 1. *p.* 58; *Torr. & Gr. fl. N. Am.* 1. *p.* 113.

Cauline leaves somewhat sagittate; auricles minute. Valves of the silicle much compressed, furnished with a conspicuous wing.

In the State of New-York (*Pursh*). I have never seen specimens of this plant collected within the limits of the State. It is doubtless an introduced species in North America.

TRIBE VII. *LEPIDINEÆ. DC.*

Silicle usually dehiscent, compressed contrary to the narrow septum (sometimes 1-celled); valves boat-shaped, or rarely ventricose. Cotyledons plane, incumbent, parallel to the septum.

13. LEPIDIUM. *R. Br. in hort. Kew.* 4. *p.* 85; *Endl. gen.* 4932. *PEPPER-WORT.*

[From the Greek *lepis*, a scale; the fruit being in the form of little scales.]

Silicle ovate or somewhat cordate; valves carinate or rarely ventricose, dehiscent; cells one-seeded. Seeds compressed, or somewhat 3-sided. Flowers small, white.

1. LEPIDIUM CAMPESTRE, *R. Br.* *Mithridate Pepper-wort.*

Silicles ovate, winged, emarginate, scaly-punctate; cauline leaves sagittate, denticulate.— *DC. syst.* 2. *p.* 535; *Torr. & Gr. fl. N. Am.* 1. *p.* 115. Thlaspi campestre, *Linn.*

Annual or biennial. Plant 8 – 12 inches high, simple, or paniculately branched above, clothed with a short soft and mostly simple pubescence. Racemes much elongated in fruit; pedicels diverging horizontally. Silicles 3 lines long.

Waste places and road-sides; rather rare. Long Island and Staten Island. Introduced. June – July.

2. LEPIDIUM VIRGINICUM, *Linn.* *Wild Pepper-grass.*

Silicles nearly orbicular, wingless, emarginate; flowers diandrous (petals 4); cauline leaves linear-lanceolate, incisely serrate; cotyledons accumbent. — *Michx. fl. 2. p. 27; DC. prodr. 1. p. 205; Bigel. fl. Bost. p. 250; Hook. fl. Bor.-Am. 1. p. 69; Darlingt. fl. Cest. p. 380; Torr. & Gr. fl. N. Am. 1. p. 115.*

Annual. Plant a foot or fifteen inches high, corymbosely branched above, minutely pubescent. Leaves 1 – 2 inches long, the lower ones incised or even pinnatifid, nearly smooth. Flowers minute, rarely triandrous. Silicles nearly two lines long, slightly emarginate; pedicels slender, spreading, 3 – 4 lines in length.

Fields and road-sides: in dry soils; common. May – September.

14. CAPSELLA. *Vent. tabl. 3. p. 110; Endl. gen. 4927.* *SHEPHERD'S-PURSE.*

[Name, the diminutive of *capsula*, a capsule or little box.]

Silicle triangular-cuneiform; valves boat-shaped, wingless, coriaceous; cells small, many-seeded. — Herbaceous, annual. Radical leaves in a rosulate cluster. Flowers minute, white.

1. CAPSELLA BURSA-PASTORIS, *Mœnch.* *Common Shepherd's-purse.*

DC. syst. 2. p. 383; Darlingt. fl. Cest. p. 380; Torr. & Gr. fl. N. Am. 1. p. 117. Thlaspi Bursa-pastoris, *Linn.; Eng. bot. t. 1485; Bigel. fl. Bost. p. 250.*

Stems 6 – 18 inches high, erect, often several from one root, simple or sparingly branched, more or less hairy. Leaves variable, sometimes entire, but usually toothed, incised or pinnatifid. Pedicels filiform, much longer than the silicles.

Fields, road-sides, etc.; a well known weed. Introduced from Europe. April – September.

3. LOMENTACEÆ.

TRIBE VIII. *CAKILINEÆ. DC.*

Silique or silicle separating transversely into several 1-celled, 1-seeded joints. Seeds usually compressed, not margined. Cotyledons plane, accumbent.

15. CAKILE. *Tourn.; Endl. gen. 4899.* *SEA ROCKET.*

[An Arabic name of a plant, supposed to be this or some allied genus.]

Silicle 2-jointed; the upper joint ovate or ensiform. Seed in the upper cell erect; in the lower pendulous. — Annual, glabrous and fleshy (usually maritime) herbs, with pinnatifid or lobed leaves. The lower joint of the silicle often abortive.

1. CAKILE MARITIMA, *Scop.* *Sea Rocket.*

Upper joint of the silicle ensiform. — *DC. prodr.* 1. *p.* 185; *Lam. ill. t.* 554. Bunias Cakile, *Linn.*

var. *Americana:* upper joint of the silicle ovate-ensiform. — *Torr. & Gr. fl. N. Am.* 1. *p.* 119. C. Americana, *Nutt. gen.* 2. *p.* 62; *DC. l. c.* C. edentula, *Hook. fl. Bor.-Am.* 1. *p.* 59. C. maritima, *Pursh, fl.* 2. *p.* 434; *Ell. sk.* 2. *p.* 137. Bunias edentula, *Bigel. fl. Bost. p.* 251.

Stem much branched, procumbent, a foot or more in length. Leaves 1 – 2 inches long, obovate, attenuate at the base, more or less toothed and lobed. Flowers corymbed, pale purple. Silicle about three-fourths of an inch long, at length somewhat woody; lower joint short, clavate-obovate; the upper one with a prominent line on each side, minutely 2 – 3-toothed at the base. Seeds almost always accumbent. — See *Torr. in ann. lyc. N. York.* 4. *p.* 91.

Sandy seashore of Long-Island, and shore of Lake Erie at Portland harbor (*Dr. Kneiskern*). July – August.

TRIBE IX. *RAPHANEÆ. DC.*

Silique or silicle indehiscent, tranversely separating into one- (or few-) seeded joints. Seeds globose. Cotyledons conduplicate, as in Brassicaceæ.

16. RAPHANUS. *Linn.; DC. syst.* 2. *p.* 662. *RADISH.*

[Named from the Greek, *ra*, quickly, and *phainomai*, to appear; from its speedy germination.]

Silique transversely many-celled. Seeds in a single series. — Leaves lyrate. Flowers yellow, white or purple.

1. RAPHANUS RAPHANISTRUM, *Linn.* *Wild Radish.*

Silique terete (joints one-seeded), moniliform and one-celled when mature, longer than the style; leaves simply lyrate. — *DC. prodr.* 1. *p.* 229; *Bigel. fl. Bost. p.* 252; *Torr. & Gr. fl. N. Am.* 1. *p.* 120.

Annual. Stem 1 – 2 feet high, branching, rough with scattered minute prickles. Leaves roughly pubescent; the terminal lobe large, ovate or obovate. Flowers at first yellow, turning white or sometimes pale purple as they grow old, about as large as in the common *Radish*. Pods 1½ to 2 inches or more in length; when mature, much constricted between the joints: style forming from one-third to one-half the length of the pod.

In fields and waste places on Long Island, about Gowannus Bay. July – September. A weed, introduced from Europe.

ORDER XIII. CAPPARIDACEÆ. *Juss.* THE CAPER TRIBE.

Sepals 4 (very rarely 2 or 8), deciduous or marcescent, distinct or more or less united and imbricated in æstivation, rarely valvate. Petals 4 (very rarely 8), cruciate or irregular, usually unguiculate and more or less unequal, sometimes wanting. Stamens, when the flowers are tetramerous, most commonly 6, often 8 – 20 or more, rarely as few as 4, inserted on the short or sometimes elongated torus: filaments equal or unequal; anthers innate or introrse, mostly revolute when dry. Ovary often stipitate, composed of 2 (rarely more) united carpels, with two parietal placentæ: style filiform, sometimes short or almost wanting; stigma entire, often discoid or somewhat capitate. Fruit one-celled, either a pod-shaped 2-valved capsule, with the valves often separating from the persistent filiform placentæ (rarely coriaceous, and nearly or quite indehiscent), or baccate, very rarely 1 – 2-, usually many-seeded. Seeds campulitropous, reniform, with no albumen, but the lining of the testa often thickened. Embryo curved: cotyledons foliaceous, somewhat incumbent. — Herbs (mostly annuals in N. America), shrubs, or rarely small trees, with a watery acrid juice. Leaves alternate, petioled, simple or palmately compound: leaflets mostly entire. Stipules none, or with spines in their place.

TRIBE I. *CLEOMEÆ. DC.*

Capsule membranaceous, dehiscent (rarely somewhat coriaceous and indehiscent). Leaves mostly compound.

1. POLANISIA. *Raf. in jour. phys.* (1819), *p.* 98; *Endl. gen.* 4988.

[From the Greek, *poly*, much, and *anisos*, unequal; in allusion to the inequality of the stamens.]

Sepals distinct, spreading. Petals 4. Stamens 8 – 32: filaments filiform, or dilated at the summit. Torus minute (often nectariferous). Pod linear, sessile or nearly so. — Annual herbs, mostly glandular, with a heavy terebinthine odor.

§. POLANISIA proper. *Torus bearing a short fleshy nectary or gland next the upper sepal: filaments filiform, often unequal and more or less declined* (6 – 8 *of them arising between the nectary and the ovary*): *petals on slender claws, unequal, emarginate or entire: sepals tardily deciduous.*

1. POLANISIA GRAVEOLENS, *Raf.* *Heavy-scented Polanisia.*

Viscidly pubescent and glandular; leaves trifoliolate; leaflets and bracts oblong, shorter

than the petiole; sepals (purplish) somewhat unequal, longer than the claws of the cuneate emarginate petals; stamens mostly 10 or 11, usually longer than the petals; style longer than the ovary; pods broadly lanceolate, turgid, attenuate at the base, reticulated, rough with a glandular pubescence; seeds somewhat flattish, nearly smooth or minutely verrucose. — *Raf. l. c.; DC. prodr.* 1. *p.* 242; *Hook. fl. Bor.-Am.* 1. *p.* 71; *Darlingt. fl. Cest. p.* 600; *Torr. & Gr. fl. N. Am.* 1. *p.* 123. Cleome dodecandra, *Michx. fl.* 2. *p.* 32; *Pursh, fl.* 2. *p.* 441; *Bigel. fl. Bost. p.* 254. C. dodecandra, var. Canadensis, *Linn.; Cornut. Can. t.* 131. C. viscosa, *Spreng. syst.* 2. *p.* 125, ex *Arn.*

Stem branching, 6 – 15 inches high, often tinged with purple. Leaflets about an inch long. Flowers numerous in a corymbose raceme. Sepals glandularly pubescent on the back. Petals yellowish-white, attenuated below into a filiform claw. Filaments purple. Nectary concave, truncate, very short. Style at length deciduous. Pod $1\frac{1}{2}$ – $2\frac{1}{2}$ inches long and 3 – 4 lines broad, dry and membranaceous. Seeds brown when mature, reniform-orbicular and moderately compressed, more or less roughened with minute rugose warts, or nearly smooth.

Gravelly banks of rivers and lakes; not found below the Highlands. June – August.

ORDER XIV. VIOLACEÆ. *DC.* THE VIOLET TRIBE.

Calyx of persistent sepals, which are often auricled at the base, imbricated in æstivation. Corolla of 5 mostly unequal petals, the superior one (which, by the inversion of the flower, becomes inferior) usually spurred or saccate at the base; the æstivation convolute. Stamens 5, inserted on the hypogynous disk: filaments short and broad, extending beyond the anthers; two of them furnished with a gland, or a slender appendage which is concealed in the spur of the corolla: anthers connivent, or somewhat cohering into a ring or tube. Style usually declined, with a thickened or hooded stigma. Capsule one-celled, opening by 3 valves, each valve bearing a parietal placenta in its middle. Seeds usually numerous (by abortion sometimes few, very rarely solitary), anatropous, with a crustaceous testa and a distinctly marked chalaza. Embryo straight, nearly as long as the fleshy albumen.— Herbs (in tropical countries sometimes shrubby plants). Leaves simple, petioled, mostly alternate, furnished with stipules.

1. VIOLA. *Linn.; Gingins in DC. prodr.* 1. *p.* 291; *Endl. gen.* 5040. VIOLET.

[A name of obscure origin.]

Sepals more or less auricled at the base. Petals unequal; the superior (by inversion inferior) one spurred at the base; the 2 lower ones with appendages on the back, which are concealed in the spur: anthers connate, the lobes diverging at the base. Ovary sometimes surrounded at the base by the concave torus, and then apparently half inferior. Capsule bursting elastically. Seeds horizontal, with an evident caruncle.—Low herbaceous plants, with a short subterraneous stem or rhizoma (and then called acaulescent or stemless), or caulescent. Leaves alternate. Peduncles angular, solitary, one-flowered, furnished with 2 small bracteoles, recurved at the summit, so that the flower is resupinate or nodding.—The species with subterraneous stems produce, late in the season, apetalous flowers on short stolons or scapes, which are often concealed beneath the surface of the ground, but bear perfect fruit.

§ 1. *Stigma rostrate; the beak more or less, with an orifice at the extremity, margined or convex on the back: style tapering from the summit to the base: anthers oblong; torus flattish.* GINGINS.

* *Acaulescent.*

1. VIOLA PEDATA, *Linn.* *Pedate Violet.*

Plant nearly smooth; leaves pedately about 7-parted; segments cuneate-lanceolate, entire or incisely 3-toothed at the summit; stigma large and thick, margined, obliquely truncate, the beak very short; petals all smooth.—*Michx. fl.* 2. *p.* 151; *Bot. mag. t.* 89; *Pursh, fl.* 1. *p.* 171; *Schwein. mon. Viol. in Sill. jour.* 5. *p.* 50; *Ell. sk.* 1. *p.* 300; *Torr. fl.* 1. *p.* 249; *DC. prodr.* 1. *p.* 291; *LeConte, mon. Viol. in ann. lyc. N. York,* 2. *p.* 147; *Hook. fl. Bor.-Am.* 1. *p.* 74; *Graham in Edin. new phil. jour. Jan.* 1833; *Torr. & Gr. fl. N. Am.* 1. *p.* 136. V. flabellifolia, *Lodd. bot. cab. t.* 777. V. digitata, *Pursh, l. c.*

Rhizoma thick and fleshy. Leaves of a firm texture: three of the divisions extend to the base of the lamina; the lateral ones 3-, sometimes 4-parted; the segments varying in breadth, usually more or less cuneiform or oblanceolate, sometimes very narrow. Stipules ciliate. Scapes 3 – 5 inches high. Flowers nearly an inch in diameter, usually bright blue, sometimes variegated, and rarely almost white. Stigma a little longer than the stamens.

Dry sandy soils. May – June. A beautiful and pretty common species in the neighborhood of New-York and on Long Island, but rare in the interior of the State.

2. VIOLA PALMATA, *Linn.* *Palmate Violet.*

Plant pubescent; leaves cordate, palmately or hastately lobed (the early ones sometimes entire); lobes crenate and toothed, the middle one much the largest; stigma capitate-triangu-

lar, with a short beak; lower petals bearded. — *Michx. fl.* 2. *p.* 161; *Ell. sk.* 1. *p.* 300; *Schwein. l. c.; Torr. fl.* 1. *p.* 249; *Le Conte, l. c.; Bigel. fl. Bost. p.* 95; *DC. prodr.* 1. *p.* 292; *Hook. fl. Bor.-Am.* 1. *p.* 74; *Darlingt. fl. Cest. p.* 142; *Torr. & Gr. fl. N. Am.* 1. *p.* 137. V. heterophylla, *Leconte, l. c.*

Rhizoma thick. Leaves variable in form, lobing and degree of pubescence; sometimes (particularly the first that expand) entire, often palmate and entire on the same plant, at other times dilated and reniform, very rarely almost smooth: petioles 3 – 8 inches long. Scapes at first longer, but finally shorter than the leaves: stipules very small, lanceolate, denticulate. Flowers middle-sized, bright blue, sometimes pale, rarely almost white.

Woods, usually in rather moist situations. May.

3. VIOLA CUCULLATA, *Ait.* *Hood-leaved Violet.*

Plant glabrous, or rarely somewhat pubescent; leaves reniform-cordate, somewhat acute, usually rolled in at the base, crenately serrate; stigma triangular-capitate, margined; lower petals bearded.— *Ait. Kew.* 3. *p.* 288; *Pursh, fl.* 1. *p.* 172; *Bigel. fl. Bost. p.* 60; *Ell. sk.* 1. *p.* 298; *Schwein. l. c.; Torr. fl.* 1. *p.* 251; *Le Conte, l. c.; DC. prodr.* 1. *p.* 292; *Hook. fl. Bor.-Am.* 1. *p.* 75. V. papilionacea, *Pursh, l. c.; DC. l. c.; Torr. & Gr. fl. N. Am.* 1. *p.* 137. V. obliqua, *Ait. l. c.; Schwein. l. c.; Torr. l. c.* V. affinis, *Leconte, l. c.*

Rhizoma thick. Whole plant usually smooth. Leaves sometimes nearly plane, varying in size and height. Flowers middle-sized, bright violet-blue or pale. Spur rounded, short.

Very common in moist low grounds. *Fl.* Latter part of April to May. — This species strongly resembles the entire-leaved form of *V. palmata*, and can only be distinguished by its almost entire smoothness, undivided leaves, and by the somewhat different form of the stigma. It may prove to be a variety of that plant.

4. VIOLA SELKIRKII, *Goldie.* *Selkirk's Violet.*

Leaves cordate, crenately serrate, minutely hairy above, smooth underneath, the sinus deep and nearly closed; stigma triangular, margined, with a distinct beak; spur nearly as long as the lamina, thick, very obtuse.— *Goldie in Edin. phil. jour.* 6. *p.* 319; *Hook. fl. Bor.-Am. p.* 75; *Torr. & Gr. fl. N. Am. p.* 137.

Rhizoma somewhat creeping. Leaves numerous, forming a small radical tuft; lamina an inch broad, somewhat acute or obtuse. Peduncles shorter than the leaves. Flowers much smaller than in *V. cucullata*; petals pale blue, obovate; spur very conspicuous, somewhat dilated at the extremity.

Woody hill-sides in the western part of the State, particularly in Oneida county (*Dr. Gray*). A well marked, but rare species.

5. VIOLA SAGITTATA, *Ait.* *Arrow-leaved Violet.*

Plant somewhat pubescent; leaves oblong, rather acute-crenate, cordate-sagittate and incised at the base; stigma depressed, margined; inferior petal smooth, the rest bearded. — *Ait. Kew.* 3. *p.* 287; *Pursh, fl.* 1. *p.* 172; *Nutt. gen.* 1. *p.* 147; *Schwein. l. c.; Torr. fl.* 1. *p.* 250; *Ell. sk.* 1. *p.* 299; *Bigel. fl. Bost. p.* 96; *DC. prodr.* 1. *p.* 294; *Le Conte, l. c.; Darlingt. fl. Cest. p.* 143; *Torr. & Gr. fl. N. Am.* 1. *p.* 138.

var. *ovata:* villous; leaves ovate, somewhat cordate, crenate, often lacerately toothed at the base; petiole margined. — *Torr. & Gr. l. c.* V. ovata, *Nutt. l. c.; Schwein. l. c.; DC. prodr. l. c.; Hook. fl. Bor.-Am.* 1. *p.* 76. V. primulifolia, *Pursh, l. c.* (not of *Linn.*). V. Alleghaniensis, *Roem. & Schult. syst.* 5. *p.* 560; *DC. l. c.*

Rhizoma short and thick. Leaves usually forming a tuft, often somewhat hastate at the base, 2 – 5 inches long (including the petiole, which is about the length of the lamina). Peduncles usually several, a little longer than the leaves; stipules subulate. Flowers middle-sized. Sepals linear-lanceolate, smoothish. Petals bright or pale purplish blue. Spur short, very obtuse and saccate. Capsule smooth, 20 – 30-seeded.

In fields and on dry hill-sides; frequent. Latter part of April to the middle of May. A variable species, but easily distinguished from all the other stemless violets by the form of the leaves. I have not observed the variety *emarginata* within the limits of the State. The whole plant is mucilaginous, and is employed in domestic practice as a demulcent.

6. VIOLA ROTUNDIFOLIA, *Michx.* *Round-leaved Violet.*

Leaves orbicular-ovate, cordate, slightly crenate-toothed, nearly smooth, the sinus usually closed; petiole pubescent; (flowers yellow;) stigma recurved at the apex, margined; lateral petals bearded; sepals obtuse; spur almost none. — *Michx. fl.* 2. *p.* 150; *Nutt. gen.* 1. *p.* 149; *Schwein. l. c.; Bigel. fl. Bost. p.* 97; *Torr. fl.* 1. *p.* 252; *DC. prodr.* 1. *p.* 295 (excl. syn. *Pursh*); *Le Conte, l. c.; Hook. fl. Bor. Am.* 1. *p.* 97; *Torr. & Gr. fl. N. Am.* 1. *p.* 138.

Rhizoma short and thick. Leaves spreading and appressed to the ground, at the flowering time about an inch long, but very much larger late in the season, flat, sprinkled with short hairs on the upper surface; the petiole about as long as the lamina. Scapes 1 – 2½ inches long, smooth. Flowers small, pale yellow. Sepals lanceolate-oblong, usually rounded at the extremity, smooth. Petals obovate, sometimes emarginate; the lateral ones strongly with dark brown lines. Capsule ovate, smooth, speckled with brown. Seeds about 20.

Shady rocky woods; rare below the Highlands; common in the northern parts of the State. *Fl.* Middle of April to May. — Remarkable among the stemless violets for its yellow flowers, and also for the large leaves which it bears in the latter part of the summer.

7. VIOLA BLANDA, *Willd.* *Sweet-scented White Violet.*

Leaves broadly cordate and cordate-reniform, smooth or slightly pubescent above, the sinus rounded; petiole smooth; stigma capitate, depressed, margined with a recurved beak; petals beardless (white); rhizoma creeping. — *Willd. hort. Berol. t.* 24; *Nutt. gen.* 1. *p.* 149; *Ell. sk.* 1. *p.* 298; *Schwein. l. c.*; *Torr. fl.* 1. *p.* 254; *Bigel. fl. Bost. p.* 94; *DC. prodr.* 1. *p.* 295; *Le Conte, l. c.*; *Darlingt. fl. Cest. p.* 145; *Torr. & Gr. fl. N. Am.* 1. *p.* 138. V. clandestina, *Pursh, fl.* 1. *p.* 173 (excl. syn. *Michx.*). V. obliqua, *Pursh, l. c.* V. amœna, *Le Conte, l. c.*

Leaves 1 – 2 inches in diameter, flat and thin; petiole mostly twice the length of the leaves. Scape slender, oblique or decumbent. Flowers small, fragrant. Sepals oblong, rather obtuse. Petals obovate, obtuse; the inferior one strongly veined with purple, and often emarginate; the two lateral ones less distinctly veined: spur short, but distinct.

Wet meadows and margins of brooks; common. April – May. — This is the only native sweet-scented violet in the United States.

8. VIOLA PRIMULÆFOLIA, *Linn.* *Primrose-leaved Violet.*

Leaves oblong, somewhat cordate, the lamina abruptly decurrent on the petiole, the under surface and the scapes somewhat pubescent; stigma capitate, margined, slightly beaked (flowers white); lateral petals smooth or slightly bearded; rhizoma creeping. — *Nutt. gen.* 1. *p.* 149; *Schwein. l. c.*; *Ell. sk.* 1. *p.* 295 (excl. syn. *Pursh*); *Torr. fl.* 1. *p.* 253; *DC. prodr.* 1. *p.* 293; *Le Conte, l. c.*; *Darlingt. fl. Cest. p.* 145; *Torr. & Gr. fl. N. Am.* 1. *p.* 139.

Leaves 3 – 6 inches high; the lamina an inch or more wide, and constituting less than half the length of the leaf, sometimes truncate at the base; the upper part of the petiole winged by the decurrent lamina. Scapes about the length of the leaves. Flower small; the lower petal conspicuously, and the two lateral ones slightly, marked with purple veins.

Wet meadows and borders of rivulets; rare. April – June.

9. VIOLA LANCEOLATA, *Linn.* *Lance-leaved Violet.*

Plant smooth; leaves lanceolate, narrowed at the base into a long petiole, rather obtuse, obscurely crenate-serrate; stigma with a short recurved beak, somewhat quadrangular and margined; petals (white) beardless; rhizoma creeping. — *Michx. fl.* 2. *p.* 150; *Nutt. gen.* 1. *p.* 150; *Schwein. l. c.*; *Torr. fl.* 1. *p.* 253; *DC. prodr.* 1. *p.* 293; *Bigel. fl. Bost. p.* 94; *Le Conte, l. c.*; *Hook. fl. Bor.-Am.* 1. *p.* 76; *Torr. & Gr. fl. N. Am.* 1. *p.* 139.

Rhizoma often throwing off from its neck long creeping stolons, bearing an apetalous flower on a short peduncle at each joint. Leaves 4 – 6 inches long (including the petiole), and usually 4 – 5 lines wide, but sometimes considerably broader; the lamina shorter than the petiole. Scapes generally exceeding the leaves. Flower small, inodorous; the lowest petal veined with purple: spur short and very obtuse.

Wet meadows; common in the valley of the Hudson, and in the northern parts of the State, but rare in the western counties. April – May; sometimes flowering again in the autumn. This and the preceding species are very nearly related. Hooker suspects that they pass into each other.

** *Caulescent: stigma convex, not margined.*

10. VIOLA STRIATA, *Ait.* (Plate VIII.) *Striated Violet.*

Nearly smooth; stem angular, oblique, branching; leaves roundish-cordate or somewhat ovate, serrate, upper ones somewhat acuminate; stipules oblong-lanceolate, dentate-ciliate; stigma tubular, recurved, pubescent at the summit; spur rather long.—*Ait. Kew.* (*ed.* 1.) 3. *p.* 291; *Pursh, fl.* 1. *p.* 174; *Nutt. gen.* 1. *p.* 150; *Ell. sk.* 1. *p.* 301; *DC. prodr.* 1. *p.* 297; *Le Conte, l. c.; Torr. & Gr. fl. N. Am.* 1. *p.* 139. V. ochroleuca, *Schwein. l. c.; Torr. fl.* 1. *p.* 255; *Hook. fl. Bor.-Am.* 1. *p.* 77; *Darlingt. fl. Cest. p.* 146. V. repens, *Schwein. l. c.* V. Lewisiana, *DC. l. c.* V. debilis, *Michx. fl.* 1. *p.* 150?

Plant 6 – 10 inches high. Leaves about an inch and a half wide, crenately serrate, slightly pubescent above and on the veins underneath. Stipules large. Peduncles usually rather longer than the leaves. Flowers large, pale yellow or cream-color; the lateral petals conspicuously bearded; the lowest one striate with purple.

Wet meadows; western part of the State; rare. April – May.

11. VIOLA MUHLENBERGII, *Torr.* *Muhlenberg's Violet.*

Plant smooth, or nearly so; stem assurgent or somewhat prostrate; leaves reniform-cordate, the upper ones a little acuminate, crenately serrate; stipules lanceolate, deeply serrate-ciliate; stigma tubular, papillose-pubescent; spur about one-third the length of the petal; the two lateral petals somewhat bearded.— *Torr. fl.* 1. *p.* 256; *Torr. & Gr. fl. N. Am.* 1. *p.* 140. V. Muhlenbergiana, *Ging. in DC. prodr.* 1. *p.* 297; *Le Conte, l. c.; Hook. fl. Bor.- Am.* 1. *p.* 78; *Darling. fl. Cest. p.* 146. V. asarifolia *and* uliginosa, *Muhl. cat. p.* 25. V. debilis, *Pursh, fl.* 1. *p.* 174 (excl. syn.). V. punctata *and* uliginosa, *Schwein. l. c.*

Stem 4 – 8 inches long, branched from the base, at first erect, but at length decumbent and geniculate. Leaves about an inch in diameter, sometimes a little pubescent on the under surface. Peduncles usually longer than the leaves. Flower middle-sized, pale purplish blue. Spur sometimes nearly half the length of the petal, tapering. Style somewhat dilated in the middle. Stigma with a conspicuous orifice, hairy-papillose on one side.

Wet meadows and swamps. May – June. Nearly allied to *V. canina* of Europe.

12. VIOLA ROSTRATA, *Pursh.* *Long-spurred Violet.*

Smooth; stems numerous, assurgent; leaves cordate, the upper ones acute, serrate; stipules lanceolate, serrate-ciliate; stigma tubular, very slender, erect, naked; petals beard-

less; spur longer than the corolla.—*Pursh, fl.* 1. *p.* 72; *Nutt. gen.* 1. *p.* 150; *Schwein. l. c.; Torr. fl.* 1. *p.* 256; *DC. prodr.* 1. *p.* 298; *Le Conte, l. c.; Hook. fl. Bor.-Am.* 1. *p.* 78; *Torr. & Gr. fl. N. Am.* 1. *p.* 140; *Reichenb. ic. exot. t.* 131.

Stems 3 – 6 inches high. Leaves 1 – 1½ inch in diameter, sometimes sprinkled with a few very short hairs on the upper surface, flat. Peduncles longer than the leaves. Flowers as large as in the preceding species, pale blue; the petals veined with deep purple. Spur slender, sometimes nearly twice the length of the flower. Appendages of the anthers filiform, extending almost the entire length of the spur. Style slender, of nearly uniform thickness throughout, terminating in the tubular stigma, the orifice of which is manifest, as in *V. Muhlenbergii.*

Swamps and moist rocky woods. Latter part of May. Rather common in the interior of the State, but not yet found below Hudson. *Fl.* Latter part of May and early in June.—The whole appearance of the plant, except the long spur, is that of *V. Muhlenbergii;* but the characters given above seem to be pretty constant.

§ 2. *Stigma capitate, bearing a tuft of hairs on each side, with a minute somewhat lateral orifice: style compressed, clavate: stamens oblong, approximate; torus rather flat: capsule often triangular.* GINGINS.

13. VIOLA PUBESCENS, *Ait.* *Yellow Violet.*

Plant commonly villous-pubescent; stem erect, naked below; leaves broadly cordate, toothed; stipules ovate-lanceolate, somewhat toothed; sepals oblong-lanceolate; spur very short.—*Ait. Kew.* (*ed.* 1.) 3. *p.* 290; *Nutt. gen.* 1. *p.* 150; *Schwein. l. c.; Torr. fl.* 1. *p.* 257; *Bigel. fl. Bost. p.* 98; *Le Conte, l. c.; Bot. reg. t.* 390; *Darlingt. fl. Cest. p.* 147; *Torr. & Gr. fl. N. Am.* 1. *p.* 142. V. Pennsylvanica, *Michx. fl.* 2. *p.* 149.

var. 1. *eriocarpa:* capsules densely villous.—*Nutt. l. c.; Torr. l. c.; Torr. & Gr. l. c.* V. eriocarpa, *Schwein. l. c.*

var. 2. *scabriuscula:* stems several, often decumbent, nearly smooth, or with a pubescent line on one side; leaves somewhat scabrous, but hardly pubescent; capsule smooth or villous.—*Torr. & Gr. l. c.* V. scabriuscula, *Schwein. l. c.; DC. l. c.*

Stem 6 – 10 inches high. Leaves 2 – 3, at the summit of the stem, 1 – 2 inches wide, with a broad shallow sinus, somewhat acuminate. Stipules foliaceous. Peduncles variable, usually shorter than the leaves. Flowers middle-sized, yellow; the three lower petals conspicuously striate with dark purple lines; lateral ones slightly bearded. Appendages of the stamens forming a broad dorsal wing or keel, not produced at the base. Style dilated upward: stigma globose, not rostrate, strongly bearded on each side.

Dry woods; common; the var. *scabriuscula* in Oneida county (*Dr. Knieskern*). *Fl.* Latter part of May – June. *Fr.* July.

14. VIOLA CANADENSIS, *Linn.* *Canadian Violet.*

Nearly smooth; leaves broadly cordate, acuminate, serrate, the nerves pubescent; stipules ovate-lanceolate, very acute, membranaceous, entire; sepals subulate; petals oblong-elliptical; spur very short; capsule somewhat globose, pubescent. — *Pursh, fl.* 1. *p.* 174; *Schwein. l. c.; Torr. fl.* 1. *p.* 255; *Bigel. fl. Bost. p.* 97; *DC. prodr.* 1. *p.* 301; *Le Conte, l. c.; Hook. fl. Bor.-Am.* 1. *p.* 80; *Torr. & Gr. fl. N. Am.* 1. *p.* 143; *Don, in Brit. fl. Gard.* (second ser.) *t.* 62.

Stem 6 – 18 inches high, erect, usually simple. Leaves slightly pubescent on both sides, the largest ones 2 inches or more in diameter; lower ones sometimes only acute, or even obtuse. Flowers middle-sized: petals paler inside, the lower ones violet externally, lateral ones bearded. Style dilated upward. Seeds roundish, ovate, brown.

Shady woods in rich soil. Common in the interior of the State; not found south of the Highlands. *Fl.* Latter part of May – July.

§ 3. *Stigma urceolate, hairy on each side; orifice large, furnished with a lip on one side: style attenuated downward: ovary partly immersed in the concave torus: seeds very numerous.* GINGINS.

15. VIOLA TRICOLOR, *Linn.* *Pansey. Heart's-ease.*

Root somewhat fusiform; stems branching, diffused; lowest leaves ovate, cordate; stipules runcinately pinnatifid, the middle lobe crenate; petals with short claws; spur thick, obtuse, not produced; appendages short; seeds oblong-ovate. *DC. prodr.* 1. *p.* 303.

var. *arvensis:* annual: stems assurgent; upper leaves spatulate-ovate; petals scarcely longer than the calyx, yellowish, blue, or spotted with purple. *DC. l. c.; Hook. fl. Bor.-Am.* 1. *p.* 81; *Torr. & Gr. fl.* 1. *p.* 143. V. bicolor, *Pursh, fl.* 1. *p.* 175; *Nutt. gen.* 1. *p.* 151; *Schwein. l. c.* V. arvensis, *Ell. sk.* 1. *p.* 302. V. tenella, *Muhl. cat. p.* 25; *Torr. fl.* 1. *p.* 257; *Le Conte, l. c.*

Plant nearly smooth. Stem somewhat triangular, slender, 3 – 6 – 8 inches high, simple and erect, or diffusely branched. Leaves less than an inch long. Peduncles longer than the leaves. Stipules very large. Flowers small: petals pale blue, yellowish towards the base (sometimes none); the lateral ones bearded. Capsule smooth.

Dry hills; Long Island, &c. May.

2. SOLEA. *Gingins in DC. prodr.* 1. *p.* 306.

[Named in honor of W. SOLE, author of an essay on the genus *Mentha.*]

Sepals nearly equal, not auricled. Petals unequal; the lowest one 2-lobed, and somewhat gibbous at the base; the rest emarginate. Stamens cohering; the lowest two bearing a

gland above the middle. Stigma uncinate, with a pore at the extremity of the point. Capsule somewhat 3-sided, surrounded at the base by the concave torus. Seeds 6 – 8, very large. — An herbaceous perennial herb, with alternate cauline leaves and small flowers on solitary or geminate axillary peduncles.

1. SOLEA CONCOLOR, *Ging.* *Green-flowered Solea.*

Ging. in DC. prodr. 1. *p.* 306; *Torr. & Gr. fl. N. Am.* 1. *p.* 144. Viola concolor, *Forst. in Linn. trans.* 6. *p.* 308. t. 28; *Nutt. gen.* 1. *p.* 151; *Schwein. l. c.; Torr. fl.* 1. *p.* 258. V. stricta, *Spreng. pug. rar.* 1. *p.* 22. Ionidium Sprengelii, *Rœm. & Schult. syst.* 5. *p.* 401.

Plant somewhat hairy or pubescent, 1 – 2 feet high, simple, leafy. Leaves 3 – 7 inches long and 1 – 2 inches wide, oblong-lanceolate, attenuate at each extremity, entire or sparingly toothed. Peduncles 3 – 4 lines long, recurved. Flowers about one-third of an inch long, greenish. Sepals as long as the corolla, lanceolate, smooth. Lowest petal twice as large as the others. Filaments produced a little above the anthers: nectariferous glands sessile, confluent. Style stout, distorted near the base: stigma smooth, not margined. Capsule nearly an inch long. Seeds globose, obovate, with a conspicuous raphe and caruncle.

Wet shady woods in the western part of the State; rare. *Fl.* May – June. *Fr.* July. A homely weed-like plant, with inconspicuous flowers.

ORDER XV. CISTACEÆ. *Juss.* THE ROCK-ROSE TRIBE.

Calyx of 5 persistent sepals; the two outer ones usually small, or sometimes wanting; the three interior imbricated, and somewhat twisted in æstivation. Corolla of 5 (rarely 3, or by abortion none), hypogynous, mostly very fugacious, usually crumpled in æstivation, and twisted in a direction contrary to that of the sepals. Stamens indefinite, or rarely few, hypogynous, distinct: anthers short, innate. Style single: stigmas as many as the placentæ, more or less united. Capsule 3 – 5-valved, 1-celled with parietal placentæ, or imperfectly 3 – 5-celled, with dissepiments proceeding from the middle of the valves, and bearing the placentæ at or near the axis. Seeds few or numerous, orthotropous (or very rarely somewhat anatropous), with mealy albumen. Embryo usually curved, or spirally convolute.— Herbs, or low shrubby plants; with simple and entire leaves, opposite or alternate, with or without stipules.

1. HELIANTHEMUM. *Tourn. inst. t.* 128; *Endl. gen.* 5029. ROCK-ROSE.

[Named from the Greek, *helios*, the sun, and *anthemon*, a flower; the flowers opening in the sunshine.]

The two exterior sepals usually much smaller and bract-like, or wanting. Petals 5, or rarely 3, sometimes abortive, fugacious. Stigmas 3, large, fimbriolate, more or less united into one. Capsule triangular, 3-valved, few- or many-seeded: placentæ filiform, in the axis of the valves or on imperfect dissepiments more or less projecting into the cell. Embryo inflexed.

The North American species of this genus produce two sorts of flowers, often on the same specimen: 1. Terminal or dichotomal flowers, usually preceding the others, on slender peduncles, with conspicuous petals and numerous stamens: 2. Smaller flowers, mostly clustered in axillary cymes or glomerules, scarcely ever fully expanding, with the petals minute or often wanting, fewer stamens, and smaller fewer-seeded capsules. Sometimes the latter only are produced.

1. HELIANTHEMUM CANADENSE, *Michx.* *Frost-weed. Frost-wort.*

Stem at first simple, erect or ascending; the primary or terminal large and petaliferous flowers few or solitary, on peduncles about the length of the flower, the erosely emarginate petals about twice the length of the calyx; secondary flowers axillary, very small, nearly sessile, solitary or somewhat clustered on short leafy branches, the petals very small or none, and the outer sepals usually wanting; leaves oblong, or somewhat lanceolate, with revolute margins (when dry), and, as well as the sepals and often the branches and peduncles, canescently tomentose. — *Michx. fl.* 1. *p.* 308; *Pursh, fl.* 2. *p.* 363; *Ell. sk.* 2. *p.* 4; *Hook. fl. Bor.-Am.* 1. *p.* 72; *Darlingt. fl. Cest. p.* 313; *Torr. & Gr. fl. N. Am.* 1. *p.* 151. H. ramuliflorum, *Michx. l. c.; Pursh, l. c.; Ell. l. c.* H. corymbosum, *Pursh, l. c.* H. rosmarinifolium, *Pursh, l. c.* Cistus Canadensis, *Linn.; Bigel. fl. Bost. p.* 212. Lechea major (the apetalous state), *Linn. amœn. acad.* 3. *p.* 11.

Stem about a foot high, rigid, at length branching; the branches flexuous, purplish. Leaves about an inch long and 3 – 4 lines wide, the pubescence stellate and fasciculate. Primary flowers nearly an inch in diameter. Exterior sepals narrow and linear; the three interior ones ovate with an abrupt point. Petals obovate, yellow. Secondary flowers sometimes very numerous, their capsules not larger than a large pin's head. Capsules of the primary flowers 3 – 4 lines long, ovate, shining. Seeds somewhat triangular, rough with minute points.

Dry sandy woods and hill-sides. Primary flowers appearing in June, the others throughout the season. — The plant is sometimes employed as an astringent and tonic. It received its popular name from the circumstance of its shooting out, early in the winter, small icy crystals from the cracked bark near the root. A similar phenomenon has been noticed in several other plants, but has not yet been satisfactorily accounted for.*

* See an article by Sir J. F. W. Herschel, on this subject, in the Philosophical Magazine, 3rd ser. vol. 2. p. 110.

2. LECHEA. *Linn.; Endl. gen.* 5030. *PIN-WEED.*

[Named in honor of JOHN LECHE, a Swedish botanist.]

The two exterior sepals much narrower and bract-like. Petals 3, inconspicuous, lanceolate, somewhat persistent. Stamens 3 – 12. Stigmas 3, nearly sessile, somewhat united, fimbriate-laciniate, depressed. Capsule 3-valved, incompletely 3-celled, or one-celled by the obliteration of the imperfect dissepiments: placentæ (internal valves, *Linn.*) ovate or roundish, nearly as broad as the valves, membranaceous or somewhat crustaceous, fixed to the dissepiments by the middle of the posterior face, about two-seeded. Seeds borne on the posterior face of the placentæ near the base, one on each side of the dissepiment, about the middle of the valves. Embryo nearly straight. — Perennial herbs, often suffruticose at the base, much branched, with numerous very small racemed or somewhat paniculate flowers: petals brownish-purple. Leaves without stipules, entire, alternate, opposite or verticillate (often on the same specimen), sessile or slightly petioled, minutely puncticulate.

§ LECHEA proper, *Spach.* *Placentæ membranaceo-crustaceous, fragile, separating from the very thin dissepiments; the margins revolute, and enveloping the seeds.*

1. LECHEA MAJOR, *Michx.* *Larger Lechea.*

Stem erect, hairy; young branches villous, the radical ones or stolons prostrate; cauline leaves elliptical, mucronulate, those of the radical branches roundish or ovate and very small, of the floral branches lanceolate; flowers very numerous, densely clustered in short unilateral racemes; pedicels very short; capsule depressed-globose and somewhat 3-sided. — *Michx. fl.* 1. *p.* 76; *Muhl. cat. p.* 15; *Pursh, fl.* 1. *p.* 90; *Bigel. fl. Bost. p.* 47; *Torr. fl.* 1, *p.* 160; *Torr. & Gr. fl. N. Am.* 1. *p.* 153; not of *Linn.* (which is an apetalous form of Helianthemum Canadense). L. minor, *Linn. amœn. acad.* 3. *p.* 10, *ex Smith, in Rees, cycl.* L. villosa, *Ell. sk.* 1. *p.* 184; *DC. prodr.* 1. *p.* 285; *Beck, bot. p.* 36; *Darlingt. fl. Cest. p.* 96. L. Drummondii, *Spach?*

Stem 12 – 15 inches high, rigid, purplish, simple below, paniculately much branched above. Stolons numerous, 3 – 6 inches long, bearing numerous crowded leaves which are often verticillate or fascicled and only 2 – 4 lines long. Cauline leaves alternate, opposite or imperfectly verticillate and more or less crowded, villous with spreading whitish hairs, especially on the margins and midrib. Flowers little more than half a line, and the capsules about one line in diameter. Seeds oval and somewhat triangular, brownish.

Dry woods and on hill-sides. July – September.

2. LECHEA THYMIFOLIA, *Pursh.* *Thyme-leaved Lechea.*

Suffrutescent; stems assurgent, densely and paniculately branched above, canescently villous (especially the branches) with white appressed hairs; radical shoots short, nearly erect; leaves very numerous, and often verticillate; cauline ones oblanceolate or linear; those of the floriferous branches narrowly linear with revolute margins, crowded; of the radical branches elliptical, densely imbricated and very villous; clusters terminal, and axillary near the extremity of the floriferous branches, 2 – 6-flowered; pedicels very short; calyx tomentose-canescent; capsule globose. — *Pursh, fl.* 1. *p.* 91; *Rees, cycl.?; Torr. fl.* 1. *p.* 161, not of *Michx.; Torr. & Gr. fl. N. Am. p.* 153.

Stem about a foot high, stiff, pyramidally branched above, mostly naked below. Cauline leaves 6 – 8 lines long, and about a line and a half wide. Flowers rather larger than in the preceding species.

Sandy margins of swamps, near the sea; Suffolk county, Long Island. Aug. – September.

3. LECHEA MINOR, *Lam.* *Smaller Lechea. Pin-weed.*

Stem erect, minutely pubescent with appressed hairs; radical branches procumbent and hairy, or often none; leaves linear and lanceolate-linear, the cauline one somewhat oblong, scattered, or sometimes verticillate; racemes nearly simple; the flowers on distinct, often appressed pedicels; capsules ovoid-globose. — *Lam. ill. t.* 52. *f.* 1?; *Pursh, fl.* 1. *p.* 91; *Bigel. fl. Bost. p.* 48; *Torr. fl.* 1. *p.* 161; *Hook. fl. Bor.-Am.* 1. *p.* 73; *Darlingt. fl. Cest. p.* 97; *Torr. & Gr. fl. N. Am.* 1. *p.* 153; not of *Linn.* and *Smith.* L. racemulosa, thymifolia, *and* tenuifolia, *Michx. fl.* 1. *p.* 76.

var. 1. *gracilis:* stem tall and slender, simple or paniculately branched above; radical branches procumbent and hairy; leaves linear-lanceolate, or somewhat oblong; racemes often panicled at the extremity of the branches; capsules rather large.—*Torr. & Gr. l. c.*

var. 2. *dumosa:* stem low, much, and somewhat fastigiately branched; leaves linear-lanceolate; radical branches numerous, slender, with smaller elliptical leaves.

Stem, in the first variety, a foot or more high, with short branches; in the other, 5 – 8 inches, with longer branches. Flowers on pedicels 2 lines or more in length. Capsules twice as large as in *L. major.* Seeds oblong.

Dry fields, open woods, and hill-sides. June – September.

3. HUDSONIA. *Linn. mant.* 11; *Endl. gen.* 5031. *HUDSONIA.*

[Named in honor of WILLIAM HUDSON, author of the Flora Anglica.]

Sepals united at the base; the two outer ones subulate, and often minute; the three inner, oblong or oval, colored within, spreading in flower, connivent in fruit. Petals 5, oblong-obovate, somewhat fugacious. Stamens 9 – 30. Style filiform, straight: stigma minute. Capsule oblong-obovoid, 1-celled, 3-valved: placentæ nerve-like, in the axis of the valves. Seeds 1 – 2 (or by abortion fewer), arising from the base of each placenta on short filiform ascending funiculi, minutely granulated. Embryo (in *H. ericoides*) slender, spirally convolute in the midst of the thin albumen. — Low, diffusely and much branched shrubby plants, forming dense tufts. Leaves subulate or acerose, densely imbricated, without stipules, pubescent or tomentose, persistent. Flowers yellow, terminating the short branches.

1. HUDSONIA ERICOIDES, *Linn.* *Heath-like Hudsonia.*

Plant canescently pubescent, erect, with the branches somewhat decumbent; leaves subulate, slightly spreading; peduncles exserted, longer than the flowers; sepals acutish; capsules oblong, slightly pubescent, 1 – 3-seeded. — *Linn. mant. p.* 74; *Willd. hort. Berol. t.* 15; *Pursh, fl.* 2. *p.* 364; *Nutt. gen.* 2. *p.* 4; *Torr. compend. p.* 215; *DC. prodr.* 1. *p.* 285; *Bot. cab. t.* 192; *Torr. & Gr. fl. N. Am.* 1. *p.* 154.

Plant 5 – 8 inches high; primary branches elongated; floral ones short. Flowers about 5 lines in diameter. Stamens 12 – 15: anthers roundish. Ovary villous: style about as long as the stamens. Capsule smooth, oblong. Seeds oblong, grayish.

Sandy woods, Suffolk county, Long Island. May and early in June.

2. HUDSONIA TOMENTOSA, *Nutt.* *Woolly Hudsonia.*

Whitish-tomentose; stems ascending; leaves minute, ovate-oblong, acute, very closely imbricated; flowers nearly sessile (the peduncles not longer than the leaves); sepals obtuse; capsules ovate, commonly one-seeded. — *Nutt. gen.* 2. *p.* 5; *Bigel. fl. Bost. p.* 213; *DC. prodr.* 1. *p.* 285; *Torr. compend. p.* 216; *Sweet, Cist. t.* 57; *Hook. fl. Bor.-Am.* 1. *p.* 73. H. ericoides, *Lam. ill. t.* 407? *Richards. app. Frank. nar. ed.* 2. *p.* 18.

Stems very diffusely branched, forming dense tufts, 4 – 6 inches high; the branches short. Leaves about a line long. Flowers very numerous, rather smaller than in the preceding species. Stamens 9 – 18. Ovary slightly villous.

Seacoast of Long Island and shore of Lake Champlain. *Fl.* Latter part of May to the middle of June. Easily distinguished from *H. ericoides*, by its short, closely imbricated, hoary leaves and nearly sessile flowers. Both species are handsome little shrubs when in full bloom, being almost covered with bright yellow flowers.

ORDER XVI. DROSERACEÆ. *DC.* THE SUNDEW TRIBE.

Calyx of 5 equal persistent sepals, imbricated in æstivation. Corolla of 5 equal petals, marcescent. Stamens usually as many as the petals and alternate with them, rarely 2 – 3 times as many, marcescent; anthers extrorse or innate. Styles 3 – 5, usually distinct, or only united at the base, each 2-parted, or many-cleft and pencil-shaped; sometimes all united into one. Capsule one-celled, 3 – 5-valved, opening loculicidally with the valves placentiferous in the middle, or sometimes bursting irregularly with a thick placenta at the base. Seeds usually numerous, anatropous; testa sometimes arilliform. Embryo small, at the base of cartilaginous or membranaceous albumen. — Small herbs growing in wet places, usually clothed with glandular hairs. Leaves alternate or clustered at the base of the scape, circinate in vernation. Stipules none, or in the form of a fringe of hairs at the base of the petioles.

1. DROSERA. *Linn.; Endl. gen.* 5033. *SUNDEW.*

[Named from the Greek, *drosos*, dew; the plant appearing as if covered with dew.]

Stamens 5. Styles distinct, 2-parted; the divisions somewhat thickened towards the apex, or many-cleft. Capsule globose or ovoid, usually 3-valved at the top: valves placentiferous to the summit. Seeds very numerous, in 2 – 5 rows on each placenta. — Small herbs, growing in sphagnous and sandy swamps. The North American species are acaulescent, with a rosulate tuft of leaves and simple scapes, which are circinate when young. Leaves covered with numerous reddish gland-bearing hairs, which secrete a viscid fluid that stains paper red. Flowers usually small, white, rose-colored, or purple.

1. DROSERA ROTUNDIFOLIA, *Linn.* *Round-leaved Sundew.*

Leaves orbicular, spreading, abruptly attenuated into the long hairy petiole; petals (white) oblong; styles very short, 2-parted, with somewhat club-shaped divisions; seeds linear, with a loose arilliform testa. — *Eng. bot. t.* 867; *Michx. fl.* 1. *p.* 186; *Ell. sk.* 1. *p.* 375; *Nutt. gen.* 1. *p.* 141; *Torr. fl. p.* 331; *DC. prodr.* 1. *p.* 318; *Hook. fl. Bor.-Am.* 1. *p.* 81; *Darlingt. fl. Cest. p.* 211; *Torr. & Gr. fl. N. Am.* 1. *p.* 146.

Leaves (including the petiole) 1 – 1½ inch long; the lamina about half an inch in diameter; the fringed stipules at the base conspicuous. Scapes solitary, or 2 – 3 from one root, 4 – 8 inches high, 5 – 10-flowered; the raceme sometimes forked at the base. Pedicels 1 – 2 lines long. Capsule oblong. Seeds attenuated at each extremity.

Sphagnous swamps. *Fl.* July – August. *Fr.* September.

2. DROSERA LONGIFOLIA, *Linn.* *Long-leaved Sundew.*

Leaves spatulate-oblong, erect-spreading, attenuate into the long and slender naked petiole; caudex ascending or decumbent, often elongated; scapes declined at the base; petals (white) short; styles very short, the divisions somewhat thickened; seeds oblong, slightly punctate, the testa not arilliform. — *Eng. bot. t.* 868; *Michx. fl.* 1. *p.* 86; *Nutt. gen.* 1. *p.* 141; *Torr. fl.* 1. *p.* 331 (*excl. syn.* Goldie); *Bigel. fl. Bost. p.* 123; *Torr. & Gr. fl. N. Am.* 1. *p.* 146. D. Americana, *Muhl. cat. p.* 33. D. intermedia, *var.* Americana, *DC. prodr.* 1. *p.* 118. D. foliosa, *Ell. sk.* 1. *p.* 375; *DC. l. c.*

Caudex, when the plant grows in water, sometimes 2 – 4 inches long. Leaves 1 – 1½ inch long, the lamina 2 – 3 lines wide, with long fringed stipules at the base. Scapes 3 – 6 inches high, usually curved to one side at the base, and then ascending, 5 – 9-flowered. Flowers twice as large as in the preceding species. Sepals oblong, obtuse. Capsule ovoid-oblong.

Sphagnous and sandy swamps. July – August. More rare than the preceding species.

3. DROSERA FILIFORMIS, *Raf.* (Plate X.) *Thread-leaved Sundew.*

Leaves filiform and very long, nearly erect, glandularly hairy, naked at the lower extremity, the stipules at the base densely woolly; scape longer than the leaves, many-flowered; petals (purple) obovate, erosely denticulate, much longer than the glandular calyx; styles 2-parted to the base, the segments filiform and slightly thickened upward; seeds acute at each end, minutely punctate, the testa not arilliform. — *Raf. in med. rep.* 2. *p.* 360, *and in Desv. jour. bot.* 1. *p.* 227; *Pursh, fl.* 1. *p.* 211; *Nutt. gen.* 1. *p.* 142; *DC. prodr.* 1. *p.* 318; *Torr. fl.* 1. *p.* 332; *Hook. in Bot. mag. t.* 3540; *Graham in new Edin. phil. mag. July*, 1836; *Torr. & Gr. fl. N. Am.* 1. *p.* 147. D. tenuifolia, *Muhl. cat. p.* 33; *Willd. enum. p.* 340; *Bigel. fl. Bost. p.* 124.

Leaves 6 – 10 inches long, about the thickness of a common packthread. Scapes (often several from one root) 8 – 12 inches high, smooth, usually 8 – 12-flowered, rarely forked at the base. Flowers, when fully expanded, half an inch in diameter, bright purple. Stamens 5; anther-cells large, oblong, distinct, at length separating from the rhombic-lanceolate connectivum; the pollen-grains connected by fine cobweb-like threads. Capsule shorter than the calyx. Seeds blackish.

Sandy wet places, a few miles east of East-Hampton, Suffolk county, Long Island. August – September. A singular and handsome plant; first discovered by the late Mr. Rafinesque, and described by him as early as the year 1808. According to Bigelow, the flowers have ten stamens, but there were only five in all the specimens that I examined.

SUBORDER PARNASSIEÆ. *Arn.*

Sepals 5, persistent, imbricated in æstivation, more or less united at the base, and coherent with the base of the ovary. Petals 5, somewhat perigynous, persistent, alternate with the sepals: vernation simple. Stamens perigynous, persistent, consisting of an outer sterile series (nectaries, *Linn.*), somewhat indefinite in number, and united in 5 phalanges, which are situated opposite the petals; and an inner series of 5 fertile stamens, alternating with the petals: anthers fixed by the base, introrse. Stigmas 4, sessile, opposite the placentæ. Capsule 1-celled, 4-valved, loculicidal, with parietal placentæ. Seeds very numerous, anatropous, with an arilliform winged testa: albumen none. Embryo straight, with a slender radicle and minute cotyledons.— Smooth perennial herbs (growing in wet places). Leaves mostly radical or nearly so, petioled, entire. Stems scape-like, elongated, bearing usually a single sessile leaf, one-flowered: flower white.

2. PARNASSIA. *Tourn. inst. t.* 127; *Endl. gen.* 5039. *GRASS OF PARNASSUS.*

["From Mount *Parnassus*, the abode of grace and beauty, where, on account of the elegance of its form, this plant is feigned to have first sprang up." LOUDON.]

Character the same as of the Suborder.

1. PARNASSIA CAROLINIANA, *Michx.* (Plate XI.) *Carolina Grass of Parnassus.*

Phalanges of abortive stamens formed of 3 stout and thick united sterile filaments distinct nearly to the base, about the length of the fertile stamens; petals nearly sessile, more than twice the length of the calyx, with strong greenish veins; leaves orbicular-ovate or somewhat elliptical-ovate, more or less cordate, the cauline one usually low down and clasping.—*Michx. fl.* 1. *p.* 208; *Bot. mag. t.* 1459; *Pursh, fl.* 1. *p.* 208; *Torr. fl.* 1. *p.* 326; *Bigel. fl. Bost. p.* 121; *DC. prodr.* 1. *p.* 320; *Hook. fl. Bor.-Am.* 1. *p.* 82; *Torr. & Gr. fl. N. Am.* 1. *p.* 149. P. palustris, *Pursh, l. c.* P. Americana *and* ovata, *Muhl. cat. p.* 32. P. ovata, *β.* Belvisii, *DC. l. c.?*

Stem (or scape) a foot or more high, angular, slender. Leaves somewhat coriaceous; radical ones several, an inch or an inch and a half long, very obtuse; the cauline one always below the middle of the stem, and often near its base. Flower an inch in diameter. Sepals oblong, obtuse, brown at the tip. Petals ovate, white, with ten or twelve strong greenish nerves extending from the base and converging towards the tip. Abortive filaments tipped with yellow glandular heads. Stigmas rarely 5, small, recurved. Capsule rarely 5-valved.

Wet meadows; rather rare. July – August.

GROUP 4. *Ovary compound, with the placentæ parietal, or 2 – 5-celled from their meeting in the axis: styles distinct or partly united. Æstivation of the calyx imbricated. Stamens and petals inserted on the receptacle. Seeds with a straight embryo and little or no albumen.*

ORDER XVII. HYPERICACEÆ. *Juss.* THE ST. JOHN'S-WORT TRIBE

Calyx of 4 – 5 sepals, which are distinct or somewhat united at the base; the 2 exterior often smaller. Petals as many as the sepals, and alternate with them; the veins oblique; æstivation twisted. Stamens usually numerous, and more or less cohering at the base in three or more parcels; anthers fixed by the middle, introrse. Styles distinct or partly united: stigmas simple or somewhat capitate. Fruit either baccate, or more commonly a capsule with 2 – 5 valves and a septicidal dehiscence, 2 – 5-celled with the placentæ in the axis, or 1-celled with the placentæ nearly or quite parietal. Seeds very numerous (rarely few), straight or a little curved, anatropous: albumen none, but the tegmen sometimes fleshy. Embryo cylindrical, straight.—Shrubs or herbs, or sometimes trees with a resinous juice, and dotted with small pellucid or black immersed glands. Leaves opposite, entire, destitute of stipules. Inflorescence various. Flowers commonly yellow.

TRIBE I. *HYPERICEÆ. Choisy.*

Fruit capsular. Seeds terete or roundish.—Herbs or shrubby plants. Leaves mostly sessile.

1. ASCYRUM. *Linn.; Choisy, prodr. Hyper., and in DC. prodr.* 1. *p.* 55; *Endl. gen.* 5463. *ST. PETER'S WORT.*

[Name from the Greek, *a*, privative, and *skyros*, roughness; the plant being smooth to the touch.]

Sepals 4; the 2 exterior usually broad and foliaceous; the inner much smaller. Petals 4, caducous. Filaments slightly united at the base into several parcels. Styles 2 – 3 (rarely 4), sometimes united. Capsule 1-celled, 2 – 3-valved: placentæ parietal. — Shrubby or suffruticose plants. Leaves sprinkled with both black and pellucid dots. Flowers 1 – 3, at the summit of the branches, yellow: a pair of subulate bracteoles at the base of each flower.

1. ASCYRUM STANS, *Michx.* *Upright St. Peter's Wort.*

Stem ancipital and somewhat winged, straight, erect, dichotomously branched at the summit; leaves oblong, closely sessile, somewhat clasping, obtuse, a little glaucous; flowers on

erect pedicels; exterior sepals cordate-orbicular, inner ones lanceolate, one-third shorter than the others; styles 3 (rarely 4); capsule ovate, rather acute.—*Michx. fl.* 2. *p.* 77; *DC. prodr.* 1. *p.* 155; *Torr. compend. p.* 219; *Torr. & Gr. fl.* 1. *p.* 157. A. hypericoides, *Linn.* (partly); *Ell. sk.* 2. *p.* 22.

Stem 12 – 18 inches high, usually simple except at the summit, rigid, woody towards the base. Leaves an inch or rather more in length and 4 – 5 lines wide, opake and rather thick. Flowers usually 3 together, nearly an inch in diameter when expanded: pedicels 4 – 6 lines long. Inner sepals somewhat petaloid, about half as long as the corolla. Petals ovate, twice as long as the calyx. Stamens very numerous. Styles somewhat spreading. Capsule obtusely triangular: placentæ somewhat prominent. Seeds ovate, longitudinally marked with fine and transverse lines.

Sandy swamps, Suffolk county, Long Island. August – September.

2. HYPERICUM. *Linn.; Choisy, l. c.; Endl. gen.* 5464. ST. JOHN'S WORT.

[An ancient name of unknown meaning and derivation.]

Sepals 5, more or less connected at the base, usually nearly equal. Petals 5, oblique and often inequilateral. Stamens very numerous or sometimes few, united at the base into 3 – 5 parcels, or sometimes distinct. Styles 3 – 5, distinct or more or less united, persistent. Capsule 1-celled with 3 – 5 parietal placentæ, or 3 – 5-celled by the placentæ meeting in the axis. — Herbaceous or shrubby plants. Flowers yellow, solitary or cymose at the summit of the stem and branches.

§ 1. *Stamens very numerous, polyadelphous; capsule* 5- (*sometimes* 6 – 7-) *celled; the dilated placenta retroflexed into the middle of the cells.—Perennial herbs: leaves ample; flowers very large.*

1. HYPERICUM PYRAMIDATUM, *Ait.* (Plate XII.) *Giant St. John's Wort.*

Stem quadrangular, and usually branching above; leaves oblong or ovate-lanceolate, acute, partly clasping, membranaceous; sepals ovate or oblong, acute, scarcely one-third the length of the petals; styles about as long as the stamens, united below, at length distinct, recurved at the summit; stigmas capitate.—*Ait. Kew.* (*ed.* 1.) 3. *p.* 103; *Willd. sp.* 3. *p.* 1444; *Vent. Malmais. t.* 118; *DC. prodr.* 1. *p.* 545; *Torr. & Gr. fl. N. Am.* 1. *p.* 158. H. amplexicaule, *Lam. dict.* 4. *p.* 141. H. macrocarpon, *Michx. fl.* 2. *p.* 82. H. ascyroides, *Willd. l. c.; Pursh, fl.* 2. *p.* 374; *Bigel. fl. Bost. p.* 279; *DC. l. c.; Hook. fl. Bor.-Am.* 1. *p.* 109. Roscyna Americana, *Spach, conspect. Hyper. in ann. sci. nat.* 1836.

Stem 2 – 4 feet high, nearly terete below; branches erect, the smaller ones and the peduncles almost ancipital. Leaves 2 – 4 inches long, and 1½ inch wide, sprinkled with minute oblong pellucid dots. Flowers nearly two inches in diameter, few or solitary at the ends of the branches; those at the summit of the stem forming a loose leafy panicle. Peduncles of

the solitary flowers 1 – 2 inches long; the others on short pedicels. Petals narrowly obovate, marcescent. Styles sometimes 6 or 7, at first forming a stout column but free at the summit, gradually separating nearly to the base. Capsule ovoid-conical, about an inch long. Seeds terete, slender, with a slight winged raphe.

Banks of rivers: on the Hudson above Albany, and sparingly in the western part of the State. July.

§ 2. *Stamens very numerous, more or less polyadelphous: capsules 3 – 5-celled by the meeting of the placentæ in the axis: placentæ either distinct or cohering more or less with each other, seminiferous on the side next the valves. — Perennial herbs or undershrubs.*

* *Shrubby; capsule 5-celled; styles 5.*

2. HYPERICUM KALMIANUM, *Linn.* (Plate XII.) *Kalm's St. John's Wort.*

Stem very much branched above; the branches quadrangular, with two of the angles slightly winged; leaves crowded, narrowly oblanceolate, obtuse; cymes fastigiate, 3 – 7-flowered; sepals ovate-lanceolate, rather obtuse, about half the length of the petals; styles connate at the base; stigmas very minute. — *Willd. sp.* 3. *p.* 1438; *Pursh, fl.* 2. *p.* 374; *Hook. fl. Bor.-Am.* 1. *p.* 109; *Torr. & Gr. fl. N. Am.* 1. *p.* 158.

A shrub 12 – 18 inches high, growing in patches. Leaves about an inch long, and 2 – 3 lines wide; the margins revolute. Flowers usually 3 together at the extremity of the branches, about three-fourths of an inch in diameter; the central one on a short pedicel; the others on pedicels about half an inch long. Petals obovate, very oblique. Styles scarcely longer than the stamens, at first united into a column, and tapering from a broad base to a sharp point, at length distinct but closely approximated. Capsule ovate. Seeds oblong.

Moist rocks about the Falls of Niagara, particularly on Goat Island and Table Rock. *Fl.* Early in August. *Fr.* September. The only shrubby species in the State.

** *Herbaceous: capsule 3-celled: styles 3. — Petals and anthers with black dots.*

3. HYPERICUM PERFORATUM, *Linn.* *Common St. John's Wort.*

Stem slightly ancipital, corymbosely branched; leaves linear-elliptical and oblong-elliptical, obtuse, with pellucid dots; petals twice as long as the lanceolate-acute sepals; styles diverging. — *Willd. sp.* 3. *p.* 1453; *Eng. bot. t.* 295; *Pursh, fl.* 2. *p.* 377; *Bigel. fl. Bost. p.* 279; *Darlingt. fl. Cest. p.* 323; *Torr. & Gr. fl. N. Am.* 1. *p.* 160.

Stem 1 – 2 feet high, marked with two opposite elevated lines, of a yellowish-green color. Leaves about three-fourths of an inch long, and 3 – 4 lines wide, very strongly punctate with scattered pellucid dots and a few black and opake ones. Flowers numerous. Stamens mostly in three sets. Capsule globose-ovoid. Seeds pitted.

Fields, pastures and road-sides; too common in most parts of the State: introduced from

Europe. June – September. — This pernicious weed is generally believed, in this country, to be the most common cause of "slabbers" in horses and horned cattle; and likewise to cause sores on their skin, especially in animals whose noses and feet are white, and whose skin is thin and tender. Dr. Darlington remarks that the dew which collects on the plant appears to become acrid. He has seen the backs of white cows covered with sores wherever the bushy extremity of their tails has been applied, after draggling through the St. John's Wort. Dr. J. M. Bigelow of Ohio states that he has known a high degree of inflammation of the mucous lining of the mouth and fauces produced by eating a few of the fresh leaves. It was formerly in considerable repute for its medicinal virtues, but was chiefly employed as a balsamic for wounds. "The flowers tinge spirits and oils of a fine purple color; and the dried plant boiled with alum dyes wool of a yellow color. The common people in France and Germany gather it with great ceremony on St. John's day, and hang it in their windows, as a charm against storms, thunder and evil spirits; mistaking the meaning of some medical writers, who have fancifully given this plant the name of *Fuga Dæmonum*, from a supposition that it was good in maniacal and hypochondriacal disorders. In Scotland it was formerly carried about as a charm against witchcraft and enchantment." *Loudon*.

4. HYPERICUM CORYMBOSUM, *Muhl.* *Corymbed St. John's Wort.*

Every part of the plant marked with black dots; stem terete, corymbosely branched above; leaves oblong, obtuse, somewhat clasping; cymes many-flowered, corymbed, sepals ovate, rather obtuse; petals oblong, more than twice the length of the calyx; styles distinct, about as long as the ovary. — *Muhl. in Wild. sp.* 3. *p.*1457, *and cat. p.* 71; *Pursh, fl.* 1. *p.* 377; *Bigel. fl. Bost. p.* 280; *Torr. & Gr. fl. N. Am.* 1. *p.* 160. H. maculatum, *Michx. fl.* 2. *p.* 80 (not of *Walt.*). H. micranthum, *Chois. in DC. prodr.* 1. *p.* 546; *Hook. fl. Bor.-Am.* 1. *p.* 109. H. punctatum, *Torr. compend. p.* 220; *Beck. bot. p.* 61; *Darlingt. fl. Cest. p.* 322; *Reichenb. ic. exot. t.* 88.

Stem 1½ – 2 feet high. Leaves 1 – 2 inches long, sometimes abruptly narrowed at the base, marked with pellucid as well as blackish dots. Flowers 4 – 5 lines in diameter. Sepals marked with pellucid dots and lines. Petals pale yellow, strongly marked with black dots and lines. Styles slender: stigmas small, capitate, orange-red. Capsule somewhat 3-lobed. Seeds cylindrical-oblong.

Woods and fields. July – September. The black dots and lines in this plant (and probably also in most others of the genus) are minute vesicles filled with an intense purple coloring matter, which is partially soluble in water, but readily taken up by alcohol. It seems to be allied to the coloring principle of logwood, and to be formed from the material of the pellucid vesicles by the action of oxygen.

§ 3. *Stamens very numerous, more or less polyadelphous: capsule one-celled, with* 3 (*rarely* 4) *parietal placentæ, which are often somewhat introflexed but do not reach to the axis, bearing the seed on the side next the axis.* — *Perennial herbs or low shrubs.*

5. HYPERICUM ELLIPTICUM, *Hook.* *Elliptical-leaved St. John's Wort.*

Stem herbaceous, quadrangular, simple below, somewhat branched at the summit; leaves elliptical, very obtuse, closely sessile, pellucid-punctate; cyme nearly naked; sepals oblong-obovate, very unequal, two-thirds the length of the petals, spreading; styles 3, connate to the summit; stigmas very minute; capsule ovoid-globose. — *Hook. fl. Bor.-Am. p.* 110; *Torr. & Gr. fl. N. Am.* 1. *p.* 164. H. sphærocarpon, *Bart. fl. Phil.* 2. *p.* 14; *Nutt. gen.* 2. *p.* 16. not of *Michx.*

Plant about a foot or eighteen inches high, slender. Leaves nearly an inch long, and 4 – 5 lines wide, sometimes oval, a little narrowed at the base. Cyme usually 5- (7 – 15-) flowered: the flowers 5 – 6 lines in diameter; those in the forks of the cyme on pedicels about one line long. Petals obovate. Capsule shorter than the calyx; the placentæ somewhat introflexed. Seeds oval, very small and numerous, minutely striate and rugose.

Moist grounds along rivers; northern and western counties: rather rare. July.

§ 4. BRATHYS, Mutis. *Stamens* 5 – 20, *distinct: capsule* 1-*celled, with* 3 *strictly parietal placentæ: styles* 3, *distinct, short. Annual.*

* *Stem simple below, dichotomously cymose above, with a flower in each fork of the cyme.*

6. HYPERICUM MUTILUM, *Linn.* *Small-flowered St. John's Wort.*

Stem quadrangular, usually much branched; leaves ovate-oblong, obtuse, clasping, 5 nerved, pellucid-punctate; cymes leafy; sepals lanceolate, rather longer than the oblong petals; stamens 6 – 12: capsule ovoid-conical.— *Linn. syst.* 2. *p.* 511; *Torr. & Gr. fl. N. Am.* 1. *p.* 164. H. quinquenervium, *Walt. fl. Car. p.* 190; *Michx. fl.* 2. *p.* 79; *DC. prodr.* 1. *p.* 550; *Hook. fl. Bor.-Am.* 1. *p.* 110; *Darlingt. fl. Cest. p.* 323; *Reichenb. fl. exot. t.* 96. H. parviflorum, *Muhl. in Willd. sp.* 3. *p.* 1457; *Pursh, fl.* 2. *p.* 376; *Ell. sk.* 2. *p.* 24; *Bigel. fl. Bost. p.* 280. Brathys quinquenervia, *Spach in conspect. Hyper. in ann. sci. nat.* 1836.

Stem 6 – 12 inches high, slender, with numerous spreading branches. Leaves 6 – 10 lines long, thin, the pellucid dots very minute; lateral veins obscure. Flowers scarcely more than two lines in diameter, pale yellow. Stigmas capitate. Capsule membranaceous. Seeds cylindrical-oblong, minutely striate and rugose.

Low grounds; common. July – September.

7. HYPERICUM CANADENSE, *Linn.* *Canadian St. John's Wort.*

Stem quadrangular, with erect branches; leaves linear or linear-lanceolate, usually narrowed at the base, 3-nerved, pellucid-punctate, and with black dots underneath; sepals lanceolate, very acute, longer than the petals and the mature acute conical capsule; stamens 5 – 10.— *Willd. sp.* 3. *p.* 1455; *Michx. fl.* 2. *p.* 79; *Pursh, fl.* 2. *p.* 378; *Ell. sk.* 2. *p.* 24; *DC. prodr.* 1. *p.* 550; *Bigel. fl. Bost. p.* 80; *Hook. fl. Bor.-Am.* 1. *p.* 110; *Darlingt. fl. Cest. p.* 324; *Torr. & Gr. fl. N. Am.* 1. *p.* 165. Brathys Canadensis, *Spach, l. c.*

Stems 6 – 15 inches high, slender, moderately branched above. Leaves about an inch long and 2 lines wide, sometimes lanceolate and rather broad at the base. Sepals unequal. Petals oblong, orange-yellow. Styles somewhat spreading: stigmas capitate. Capsule almost always longer than the calyx, and usually, when mature, twice as long, mostly purplish brown. Seeds cylindrical-oblong, marked with a number of elevated lines and faint transverse striæ, dull yellow.

Wet places, particularly in sandy soils. The broad-leaved form has been considered a distinct species by some of our botanists, but it passes gradually into the common kind. The length and shape of the capsule are variable: sometimes, even when nearly ripe, it is scarcely as long as the calyx. Flowers from June to August.

** *Stems rather rigid, dichotomously or irregularly much branched from near the base: flowers distinct, and somewhat racemose on the branches: leaves subulate, appressed.* (Sarothra, *Linn.*)

8. HYPERICUM SAROTHRA, *Michx.* *Ground Pine. Nitweed. Pine-weed.*

Stem and branches filiform, quadrangular; leaves very minute, subulate, appressed; flowers sessile; stamens 5 – 10; capsule conical, very acute, twice the length of the linear-lanceolate sepals.— *Michx. fl.* 2. *p.* 79; *Pursh, fl.* 2. *p.* 78; *Torr. compend. p.* 221; *Darlingt. fl. Cest. p.* 324. H. nudicaule, *Walt. fl. Car. p.* 190. Sarothra gentianoides, *Linn.; Willd. sp.* 3. *p.* 1515; *Ell. sk.* 1. *p.* 371; *Grev. & Hook. in bot. misc.* 3. *p.* 236. S. gentianoides, *Nutt. gen.* 1. *p.* 204; *Bart. fl. Am. Sept.* 3. *t.* 92. *f.* 1.

Stem usually from 4 to 8 inches high and fastigiately branched, often tortuous at the base. Leaves scarcely more than a line long, with scattered opake dots, closely appressed to the stem, so that the plant appears almost leafless. Flowers about 2 lines in diameter, orange-yellow. Petals oblong-linear, longer than the calyx. Styles somewhat spreading: stigmas capitate. Capsule tapering to a long point, dark purple. Seeds oblong, yellowish.

Sandy fields and road-sides; common. June – August.— It is a little remarkable that this plant, which is a *Hypericum* in all respects, should have been excluded from the genus, and even from the order, by many distinguished botanists. There is considerable difference of opinion as to whether the embryo is surrounded with albumen or not. The endopleura is lined with a fleshy stratum in all the species of the genus; but in the section BRATHYS, at least, it strongly resembles albumen, constituting the chief bulk of the seed, and abounding in oil.

3. ELODEA. *Adans.; Spach in ann. sci. nat. (ser. 2.) 5. p. 165, not of Michx.; Endl. gen. 5465.* ELODEA.

[From the Greek, *elodes*, growing in marshy places.]

Calyx of 5 equal sepals somewhat united at the base. Petals 5, deciduous, equilateral. Stamens 9 (rarely 12 – 15), united in three parcels which alternate with 3 hypogynous glands. Styles 3, distinct. Capsule oblong, membranaceous, 3-celled; the placentæ somewhat cohering in the axis, at length separating from the valves.— Perennial, smooth, and slightly glaucous herbs. Leaves membranaceous, pellucid-punctate, and often with a few black dots (the axils never leafy). Cymules few-flowered, terminal and in the axils of the upper leaves, pedunculate or nearly sessile: flowers dull orange-purple.

1. ELODEA VIRGINICA, *Nutt.* *Virginian Elodea.*

Leaves sessile, clasping; stamens united below the middle.— *Nutt. gen. 2. p. 17; Ell. sk. 2. p. 33; Spach, l. c.; Torr. & Gr. fl. N. Am. 1. p. 167.* E. campanulata, *Pursh, fl. 2. p. 379.* E. Drummondii *and* Fraseri, *Spach, l. c.* Hypericum Virginicum, *Linn.; Michx. fl. 2. p. 81; Andr. bot. rep. t. 552; Bigel. fl. Bost. p. 281; Hook. fl. Bor.-Am. 1. p. 109; Darlingt. fl. Cest. p. 322.* H. campanulatum, *Walt. fl. Car. p. 191.*

Plant a foot or eighteen inches high; the stem and branches, and sometimes even the leaves tinged with purple. Leaves oblong, 1 – 2 inches long, obtuse or slightly emarginate, paler and somewhat glaucous underneath. Axillary cymes about 3-flowered; the terminal one often compound. Flowers about half an inch in diameter. Sepals lanceolate. Petals oblong, marked with purple veins, pellucid-punctate, nearly twice as long as the calyx. Stamens very generally 9; the filaments united about one-third of their length; with a prominent orange-colored gland between each parcel. Capsule ovoid, acute, much longer than the calyx. Seeds oblong, pitted: testa very thick and crustaceous. Endopleura thin. Embryo oblong, straight.

Open swamps; rather common. July – August.

ORDER XVIII. ELATINACEÆ. *Cambessédes.* THE WATER-WORT TRIBE.

Sepals 2 – 5, mostly distinct, persistent. Petals hypogynous, as many as the sepals and alternate with them. Stamens hypogynous, as many or twice as many as the petals: anthers fixed by the middle, introrse. Styles 2 – 5, very short, distinct or united at the base, or none: stigmas capitate. Capsule 2 – 5-celled, 2 – 5-valved: dehiscence septifragal. Seeds few or many, oblong-cylindrical, with little or no albumen. Embryo cylindrical: cotyledons short. —Small annual plants, growing in marshes, with fistulous rooting stems, opposite, entire or serrated leaves, and minute axillary flowers. Stipules small and inconspicuous, sometimes wanting.

1. ELATINE. *Linn.; Endl. gen.* 5475. *WATER-WORT.*

[From the Greek, *elate*, a fir; its fine leaves bearing some distant resemblance to those of a fir tree.]

Calyx 2 – 4-parted. Petals 2 – 4. Stamens 2 – 8. Capsules 2 – 4-valved; margin of the valves not introflexed.

1. ELATINE AMERICANA, *Arnott.* *American Water-wort.*

Stem diffuse, with assurgent branches; leaves cuneate-obovate, obtuse; flowers sessile, minute; sepals, petals, stamens and sessile stigmas 2, sometimes 3; seeds few (6 – 8). — *Arn. in Edin. jour. nat. & geog. science*, 1. *p.* 430; *Torr. & Gr. fl. N. Am.* 1. *p.* 203. Peplis Americana, *Pursh, fl.* 1. *p.* 238. Crypta minima, *Nutt. in jour. acad. Philad.* 1. *p.* 117. *t.* 6. *f.* 1; *Torr. fl.* 1. *p.* 32. Elatine minima, *Fisch. et Meyer in Linnæa*, 10. *p.* 69.

Stem rooting and creeping, forming patches; the assurgent branches rising to the height of an inch, or sometimes nearly two inches. Leaves 2 – 3 lines long, entire. Flowers solitary, about the size of a pin's head. Sepals (always?) 2, oval, obtuse. Petals 2, roundish, concave, closely applied to and enclosing the ovary. Stamens 2, alternate with the petals: anthers didymous, lying in close contact with the stigmas. Ovary globose, 3-celled, with 4 – 5 ovules in each cell: stigmas usually 3, distinct, short. Capsule membranaceous, globose, 3-celled (always?); the dissepiments breaking away from the valves, 6 – 8-seeded. Seeds large for the size of the capsule, a little curved, marked with longitudinal lines, and transverse wrinkles with intervening excavations.

Margins of ponds, Suffolk county, Long Island; Peach Pond, Westchester county (*Dr. Mead*). Flowers from July to September.

GROUP 5. *Ovary compound, one-celled with a free central placenta, or several-celled with the placentæ in the axis. Calyx free from the ovary or nearly so.*

ORDER XIX. CARYOPHYLLACEÆ. *Juss.* THE PINK TRIBE.

Calyx of 4 – 5 sepals, which are distinct or cohering below into a tube. Corolla of 4 – 5 petals (sometimes wanting), unguiculate and inserted upon the pedicel of the ovary, or without claws and inserted on the outside of a fleshy disk which is sometimes perigynous. Stamens as many, or, more commonly, twice as many as the petals, and inserted with them: anthers fixed by the middle, introrse. Ovary often stipitate: styles 2 – 5, usually stigmatose the whole length on the inner surface. Capsule 2 – 5-valved, one-celled by the obliteration of the dissepiments; or more or less completely 2 – 5-celled, opening at the apex by twice as many teeth as there are stigmas, or by loculicidal dehiscence: placenta in the axis. Seeds campulitropous, numerous (rarely few). Embryo curved around the outside of mealy albumen. — Herbs. Stems with tumid joints. Leaves opposite, entire, destitute of stipules.

CONSPECTUS OF THE TRIBES.

Tribe I. ALSINEÆ. Sepals nearly or quite distinct. Petals without claws, inserted with the stamens on the disk. Capsule one-celled.

Tribe II. SILENEÆ. Sepals united into a tube. Petals with claws, inserted with the stamens on the stipe of the ovary. Capsule one-celled.

Tribe III. MOLLUGINEÆ. Sepals united at the base. Capsule 3 – 5-celled.

TRIBE I. *ALSINEÆ. Bartl.*

Sepals nearly or quite distinct. Petals destitute of claws, inserted on the outside of the hypogynous, or more or less perigynous, disk. Stamens inserted on the margin of the disk. Capsule one-celled.

CONSPECTUS OF THE GENERA.

1. HONCKENYA. Sepals and petals 5; the latter entire and perigynous. Stamens 10. Seeds few, not strophiolate.
2. SAGINA. Sepals and petals 4 – 5, the latter entire. Stamens 4 – 10. Styles 4 – 5. Capsule 4 – 5-valved; the valves entire. Seeds numerous.
3. ARENARIA. Sepals and petals 5, the latter entire. Stamens mostly 10. Styles 3. Capsule 3-valved. Seeds numerous.
4. MŒHRINGIA. Sepals and petals 4 – 5; the latter entire or retuse. Stamens 8 – 10. Styles usually 3. Capsule 3- (rarely 2- or 4-) valved; the valves 2-parted to the base. Seeds rather few, strophiolate.
5. STELLARIA. Sepals and petals usually 5; the latter 2-cleft. Stamens mostly 10. Styles 3 (rarely 4). Capsule 3- (rarely 4-) valved; the valves 2-parted.
6. CERASTIUM. Sepals and petals usually 5; the latter 2-cleft. Styles 5 (rarely 4). Capsule opening at the summit by 10 teeth. Seeds numerous.

1. HONCKENYA. *Ehrh. beitr.* 2. *p.* 81 (not of *Willd.*); *Endl. gen.* 5229. *SEA CHICKWEED.*

[Named in honor of J. G. HONCKENY, a German botanist.]

Sepals 5, slightly united at the base. Petals 6, perigynous, with short claws, entire. Stamens 10, inserted with the petals into a glanduliferous disk. Styles 3 – 5. Capsule 3 – 5-valved; the valves entire, 8 – 10-seeded. Seeds large, smooth, not strophiolate. — Fleshy, maritime, perennial herbs, with a creeping rhizoma, and erect or prostrate branches. Flowers axillary, and generally solitary.

1. HONCKENYA PEPLOIDES, *Ehrh.* *Common Sea Chickweed.*

Sepals broadly ovate, mostly obtuse, with scarious margins; petals spatulate-obovate; leaves and stem very fleshy. —*Torr. & Gr. fl. N. Am.* 1. *p.* 176. Arenaria peploides, *Linn.; Willd. sp.* 2. *p.* 717; *Eng. bot. t.* 189; *Pursh, fl.* 1. *p.* 317; *Torr. fl.* 1. *p.* 453; *Bigel. fl. Bost. p.* 181; *DC. prodr.* 1. *p.* 413; *Hook. fl. Bor.-Am.* 1. *p.* 102 (in part). Adenarium peploides, *Raf. in Desv. jour. phys.* (1818); *DC. prodr.* 3. *p.* 366.

Rhizoma creeping extensively, and throwing up numerous simple or divided branches from 6 to 10 inches high. Leaves ovate or oval, about three-fourths of an inch long, closely sessile or clasping, spreading or somewhat recurved, abruptly acute or mucronate. Flowers polygamo-dicœcious, on very short pedicels. Petals about as long as the calyx. Stamens usually 10 (in some of the flowers occasionally 8). Styles three in the lower, and usually 5 in the upper flowers. Capsule somewhat globose, the size of a pea. Seeds large, pyriform, finely granulated.

On the seacoast of Long Island, forming often large patches in the pure white sand, above high-water mark. Whole plant very succulent and heavy. Flowering from the middle of May to near the end of June.

2. SAGINA. *Bartl. ord. nat. p.* 305; *Endl. gen.* 5224. *PEARL-WORT.*

[In Latin, the name signifies something nourishing: it has little application to the small weeds of this genus.]

Sepals 4 – 5, united at the base. Petals 4 – 5, entire, sometimes abortive. Stamens 4 – 10. Styles 4 – 5. Capsule 4 – 5-valved; the valves entire at the apex. Seeds numerous, not strophiolate. — Flowers on axillary and terminal peduncles. Leaves often fascicled in the axils.

1. SAGINA PROCUMBENS, *Linn.* *Procumbent Pearl-wort.*

Plant smooth; stems procumbent; leaves linear, mucronate; peduncles ascending in fruit; sepals broadly ovate, obtuse, twice the length of the petals, and two-thirds the length of the

ovate capsule; stamens, petals and sepals 4 – 5. — *Gært. fruct. t.* 129; *Eng. bot. t.* 880; *Ell. sk.* 1. *p.* 221; *Torr. fl.* 2. *p.* 195; *Hook. fl. Bor.-Am.* 1. *p.* 92; *Torr. & Gr. fl. N. Am.* 1. *p.* 177.

Annual or biennial. Stems 2 – 4 inches long, diffuse, and rooting at the lower joints. Lower leaves connate at the base, spreading or somewhat recurved. Peduncles longer than the leaves. Petals white, sometimes wanting. Capsule rather broadly ovoid.

Borders of creeks and springs, and in rather moist sandy soils; on Long Island, abundant; also near the city of New-York; on the banks of the Hudson near Troy, etc. May – August.

2. SAGINA APETALA, *Linn.?* — *Apetalous Pearl-wort.*

Stem almost setaceous, erect, nearly smooth; leaves subulate, mucronate; peduncles erect, the terminal ones somewhat fastigiate; sepals 4 – 5, oblong, about half the length of the mature ovoid capsule; petals none; stamens and sepals 4 – 5. — *DC. prodr.* 1. *p.* 389; *Torr. & Gr. fl. N. Am.* 1. *p.* 177?

Annual. Stem 2 – 4 inches high, scarcely as stout as a horse-hair, somewhat branching towards the summit. Leaves 2 – 5 lines long, not half as broad as in the preceding species, with a conspicuous mucronate point, nearly smooth; upper ones connate and scarious at the base. Pedicels filiform; the upper ones nearly three-quarters of an inch long, forming a loose few-flowered cyme. Sepals more than twice as long as broad. No traces of petals.

Dry hill-sides on the Island of New-York, near Manhattanville. May. — This plant differs from *S. apetala* in its smoothish stem and leaves, and in the entire absence of petals: in that species, Mr. Wilson states that they are always present, but very minute.

3. ARENARIA. *Linn.*; *Bartl. ord. nat. p.* 305. — *SAND-WORT.*

[Named from the Latin, *arena*, sand; because most of the species grow in sandy soils.]

Sepals 5. Petals 5, entire. Stamens 10, or by abortion fewer. Styles 3, rarely 2 or 4. Capsule 3-valved. Seeds numerous, roundish or reniform, not strophiolate. — Flowers terminal.

§ 1. ARENARIA proper. *Valves of the capsule 2-toothed at the summit.*

1. ARENARIA SERPYLLIFOLIA, *Linn.* — *Thyme-leaved Sand-wort.*

Plant retrorsely roughish-pubescent; leaves (small) ovate, acute, minutely ciliate; calyx acuminate, scabrous, 3 – 5-nerved, nearly twice the length of the petals, and equal to the ovate capsule. — *Willd. sp.* 2. *p.* 720; *Eng. bot. t.* 923; *Michx. fl.* 1. *p.* 274; *Pursh, fl.* 1. *p.* 316; *Ell. sk.* 1. *p.* 518; *Torr. fl.* 1. *p.* 454; *DC. prodr.* 1. *p.* 411; *Torr. & Gr. fl. N. Am.* 1. *p.* 182.

Annual. Stems 2 – 6 inches high, usually several from one root, at first erect, at length more or less decumbent and somewhat diffuse. Leaves scarcely one-fourth of an inch long,

closely sessile. Flowers mostly in a small terminal leafy cymule. Petals oval. Capsule ovoid, coriaceous, opening at first by six teeth at the summit, finally splitting into 3 valves, each 2-toothed at the tip. Seeds numerous, reniform, rough.

A common plant in sandy fields, cultivated ground, and on dry hill-sides; introduced from Europe, but now found in all parts of the United States. *Fl.* April – July.

§ 2. ALSINE, Wahl.; Fenzl. *Valves of the capsule entire.*

2. ARENARIA SQUARROSA, *Michx.* (Plate XIV.) *Squarrose Sand-wort.*

Densely cæspitose; upper part of the stems minutely glandular-pubescent; leaves short, subulate, rigid, channelled on the upper surface; the lower ones densely squarrose-imbricate, rather obtuse; upper ones distant: petals about three times as long as the ovate very obtuse sepals.—*Michx. fl.* 1. *p.* 273; *Torr. fl.* 1. *p.* 454; *DC. prodr.* 1. *p.* 403; *Ell. sk.* 1. *p.* 520; *Torr. & Gr. fl. N. Am.* 1. *p.* 179. A. Caroliniana, *Walt. fl. Car. p.* 141? A. imbricata, *Raf. in Desv. jour. bot.* 1. *p.* 229? A. Rafinesquiana, *Seringe in DC. prodr.*

Root perennial, perpendicular and very long. Stems numerous, forming dense tufts. Flowering branches 5 – 8 inches long, erect or procumbent, simple, about 3-flowered. Leaves 3 – 4 lines long, with a prominent midrib underneath. Flowers about one-third of an inch in diameter. Sepals herbaceous. Capsule roundish-ovoid, obtuse, longer than the calyx.

Arid sandy fields, Suffolk county, Long Island. April – September.

A common species in the pine barrens of New-Jersey.

3. ARENARIA STRICTA, *Michx.* *Upright Sand-wort.*

Loosely cespitose, at length diffuse, smooth; stems filiform, branching from the base; leaves subulate-setaceous, one-nerved, much fascicled in the axils; petals oblong-obovate, twice the length of the rigid, ovate, very acute, 3-ribbed sepals.—*Michx. fl.* 1. *p.* 274; *Ell. sk.* 1. *p.* 520; *DC. prodr.* 1. *p.* 503; *Torr. fl.* 1. *p.* 455; *Bigel. fl. Bost. p.* 180; *Hook. fl. Bor.-Am.* 1. *p.* 99. *t.* 33; *Torr. & Gr. fl. N. Am.* 1. *p.* 179. Alsine Michauxii, *Fenzl, l. c.*

Perennial. Stems 6 – 10 inches, very numerous, cymosely divided at the summit, many-flowered. Leaves 5 – 8 lines long, very narrow, at first erect, at length spreading, and the lower ones somewhat recurved. Sepals strongly 3-ribbed. Capsule ovoid, about the length of the calyx. Seeds few, large, reniform, compressed, nearly black, rugosely scabrous.

On rocks and in barren places, particularly on the banks of rivers and lakes; northern and western counties. May – July.

4. ARENARIA GRŒNLANDICA, *Spreng.* (Plate XV.) *Greenland Sand-wort.*

Densely cæspitose, smooth; stems low, decumbent at the base, 1 – 5-flowered; leaves narrowly linear, obtuse; pedicels filiform, nearly erect; petals obovate-cuneiform, entire or

with a slight notch, twice the length of the oblong, obtuse, membranaceously margined, nerveless sepals.— *Spreng. syst.* 2. *p.* 402; *Torr. & Gr. fl. N. Am.* 1. *p.* 180. Stellaria Grœnlandica, *Retz.; DC. prodr.* 1. *p.* 398. Arenaria glabra, *Torr. fl.* 1. *p.* 455. (*excl. syn.*); *Bigel. fl. Bost. p.* 180. Alsine glabra, *Fenzl, l. c.* (in part).

Stems numerous, 2 – 4 inches high, slender. Leaves 3 – 5 lines long, not rigid, erect or spreading. Flowers one-third of an inch in diameter. Sepals somewhat gibbous at the base. Capsule about as long as the calyx, oblong, acute. Seeds compressed, roundish-ovoid, with a short beak.

Crevices of rocks on the highest summits of the Shawangunk Mountains. On Whiteface Mountain, Essex county (*Dr. Emmons*). June – August.

4. MŒHRINGIA. *Linn.; Fenzl in Endl. gen.* 5235. *MŒHRINGIA.*

[In honor of PAUL HENRY GERARD MŒHRING, a German physician and botanist of the last century.]

Sepals 4 – 5. Petals 4 – 5, somewhat perigynous. Stamens 8 – 10. Styles usually 3, sometimes 2 or 4. Capsule splitting into twice as many (half) valves as there are stigmas. Seeds rather few, smooth and shining; the umbilicus distinctly strophiolate.

1. MŒHRINGIA LATERIFLORA, *Fenzl.* *Lateral-flowered Mœhringia.*

Plant minutely pubescent; stem erect; leaves oblong or oval, obtuse; peduncles lateral and terminal 2- (rarely 3 – 4-) flowered, one of the pedicels with 2 bracteoles near the middle; flowers pentamerous; styles 3; petals twice the length of the sepals.— *Fenzl in ann. Wien. Mus.* Arenaria lateriflora, *Linn.; Pursh, fl.* 1. *p.* 317; *Torr. fl.* 1. *p.* 454; *Bigel. fl. Bost. p.* 181; *DC. prodr.* 1. *p.* 412; *Hook. fl. Bor.-Am.* 1. *p.* 102. *t.* 36; *Darlingt. fl. Cest. p.* 277; *Torr. & Gr. fl. N. Am.* 1. *p.* 182.

Stem 4 – 8 inches high, slender but somewhat rigid, simple or a little branched above. Leaves about three quarters of an inch long, pale green, punctate, scabrous-pubescent on the margin and midrib. Peduncles an inch or more in length, filiform, usually solitary; but when the stem is branching, sometimes 2 or more on one plant, each commonly but 2-flowered. Flowers about one-third of an inch in diameter. Sepals and petals ovate-oblong, obtuse. Capsule roundish-ovoid. Seeds reniform-orbicular, compressed, rugosely scabrous; the umbilicus distinctly strophiolate.

In woods and along streams; sometimes in dry sandy soils; rather rare. June.— This plant, which had long been regarded as an anomalous species of *Arenaria*, is, I think, correctly referred by Fenzl to *Mœhringia*. It differs from the former in its somewhat perigynous petals, the valves of the capsule splitting into two pieces, and in the strophiolate seeds.

5. STELLARIA. *Linn.; Endl. gen.* 5240. *STITCH-WORT.*

[Named from *stella*, a star; in allusion to the form of the flower.]

Calyx of 5 sepals, which are somewhat united at the base. Petals 5 (sometimes, by abortion, fewer or none), 2-cleft or 2-lobed, often more or less perigynous. Stamens 10 (or, by abortion, 3 – 8). Styles 3, rarely 4. Capsule 3- (sometimes 4-) valved; valves 2-parted, membranaceous. Seeds usually many, sometimes few, not strophiolate. — Herbaceous plants, mostly growing in moist situations. Flowers terminal, in dichotomous cymes, or solitary. The flowers are often apparently lateral, from the evolution of a branch in the axil of the upper leaves, which forms a continuation of the stem. — Funiculi slender, 2 – 3 times the length of the seed.

1. STELLARIA MEDIA, *Smith.* *Common Chickweed.*

Stems procumbent, with an alternate pubescent line; leaves ovate, abruptly petiolate; petals oblong, deeply divided, shorter than the sepals; stamens 3 – 10. — *Eng. bot. t.* 537; *Pursh, fl.* 1. *p.* 317; *Torr. fl.* 1. *p.* 452; *Bigel. fl. Bost. p.* 181; *DC. prodr.* 1. *p.* 398; *Hook. fl. Bor.-Am.* 1. *p.* 94; *Darlingt. fl. Cest. p.* 274; *Torr. & Gr. fl. N. Am.* 1. *p.* 183. Alsine media, *Linn.* Holosteum succulentum, *Linn.*

Annual, but often living through the winter till the next season. Stem much branched, tender and somewhat succulent. Leaves about half an inch long, on ciliate petioles the length of the lamina. Flowers on hairy pedicels, which are deflexed in fruit. Calyx hairy. Stamens mostly 3 or 5. Styles 3. Capsule ovoid. Seeds rather large, reniform-orbicular, muricate.

Fields and cultivated grounds; very common. Flowers from February to December. Introduced from Europe, and now diffused throughout the United States.

2. STELLARIA LONGIFOLIA, *Muhl.* *Long-leaved Stitch-wort.*

Stem branching, weak, smooth; leaves linear, mostly attenuate at the base, acutish; cyme divaricate, naked, with lanceolate scarious bracts; petals cleft nearly to the base, at first shorter, at length longer, than the acute 3-nerved sepals; styles 3 – 4. — *Torr. fl.* 1. *p.* 452 (excl. syn. *Gold.*); *Bigel. fl. Bost. ed.* 2. *p.* 182; *DC. prodr.* 1. *p.* 400; *Hook. fl. Bor.-Am.* 1. *p.* 94; *Darlingt. fl. Cest. p.* 275; *Torr. & Gr. fl. N. Am.* 1. *p.* 185. S. graminea, *Bigel. fl. Bost. ed.* 1. *p.* 110. Spergulastrum gramineum, *Michx. fl.* 1. *p.* 276; *DC. prodr.* 1. *p.* 421. Micropetalon gramineum, *Pers. syn.* 1. *p.* 509.

Perennial. Stem about a foot high, slender, usually erect, but sometimes prostrate, 4-angled; the angles often a little retrorsely scabrous. Leaves 1 – 2 inches long and 1 – 2 lines wide.

spreading widely, slightly rough on the margin. Stamens 8 – 10. Styles often 4, and occasionally 5. Capsule globose-ovoid, about the length of the calyx. Seeds muricate.

Wet shady places, rather common. Latter part of May, and early in June. Nearly allied to *S. graminea* of Europe.

3. STELLARIA BOREALIS, *Bigel.* *Northern Stitch-wort.*

Smooth and flaccid; leaves broadly lanceolate, acute, veinless; petals (often wanting) 2-parted, nearly the length of the lanceolate-acute nerveless sepals; capsules ovoid-oblong, nearly twice the length of the calyx; styles usually 4. — *Bigel. fl. Bost. p.* 182; *Hook. fl. Bor.-Am.* 1. *p.* 94; *Torr. & Gr. fl. N. Am.* 1. *p.* 185. S. lanceolata, *Torr. fl.* 1. *p.* 45, not of *Poir.* Spergulastrum lanceolatum, *Michx. fl.* 1. *p.* 275. Micropetalon lanceolatum, *Pers. syn.* 1. *p.* 509.

Perennial. Stem 4 – 10 inches long, angular, somewhat diffuse. Leaves about an inch long, with a single strong nerve. Flowers at first terminal and usualy apetalous, on a slender pedicel, becoming lateral by the evolution of a branch from the axil of each of the upper leaves; the lateral branches at length floriferous, bearing petaliferous flowers. Stamens and petals distinctly perigynous. Seeds rather large, nearly smooth.

Wet shady swamps, northern and western parts of the State. June – August.

6. CERASTIUM. *Linn.; Endl. gen.* 5241. *MOUSE-EAR CHICKWEED.*

[From the Greek, *keras*, a horn; in allusion to the form of the capsule.]

Calyx of 5 (rarely 4) sepals, which are somewhat united at the base. Petals 5 (sometimes 4), bifid or emarginate. Styles 5 (rarely 4). Capsule membranaceous, cylindrical or oblong, opening at the summit by 10 teeth. Seeds numerous, not strophiolate. — Funiculi very short, the seeds separating from them, but remaining suspended from the placenta by a spiral vessel.

1. CERASTIUM VULGATUM, *Linn.* *Common Mouse-ear Chickweed.*

Hairy, pale green; stems ascending or spreading; leaves ovate or obovate, very obtuse, attenuate at the base; flowers somewhat capitate, when young longer than the pedicels; capsule cylindrical, twice the length of the calyx. — *Eng. bot. t.* 789; *Torr. fl.* 1. *p.* 458; *DC. prodr.* 1. *p.* 415; *Darlingt. fl. Cest. p.* 277; *Torr. & Gr. fl. N. Am.* 1. *p.* 187. C. semidecandrum, *Walt. fl. Car. p.* 241; *Pursh, fl.* 1. *p.* 320. C. hirsutum, *Muhl. cat. p.* 46; *Ell. sk.* 1. *p.* 524; *Torr. fl. l. c.* C. connatum, *Beck, bot. p.* 55.

Plant annual, somewhat viscid when young. Stem 4 – 10 inches long. Leaves 6 – 8 lines long, the lower ones obovate. Flowers rather crowded. Petals bifid at the summit. Capsule a little curved; the teeth (as in all the following species) erect and revolute on the margin. Seeds muricate.

Cultivated grounds, road-sides, etc. Introduced from Europe. May – September.

2. CERASTIUM VISCOSUM, *Linn.* *Viscous Mouse-ear Chickweed.*

Hairy and rather viscid; stem spreading; leaves lanceolate-oblong, obtusish; cymes rather loosely flowered, with the pedicels mostly longer than the calyx; capsule nearly twice as long as the calyx. — *Eng. bot. t.* 790; *Torr. fl.* 1. *p.* 458; *Bigel. fl. Bost. p.* 184; *DC. prodr.* 1. *p.* 415; *Darlingt. fl. Cest. p.* 278; *Torr. & Gr. fl. N. Am.* 1. *p.* 187. C. vulgatum, *Muhl. cat.* (fide *Darlingt.*).

Perennial? Stems 6 – 12 inches long. Leaves an inch or more in length, sessile and rather broad at the base, much shorter than the internodes. Flowers and fruit resembling those of the preceding species. — A larger and coarser plant than *C. vulgatum*, as well as deeper green and less hairy.

Fields, road-sides, and cultivated grounds; very common. Introduced from Europe. *Fl.* May – September.

3. CERASTIUM ARVENSE, *Linn.* *Field Chickweed.*

Stems declined at the base, retrorsely pubescent; leaves linear or linear-lanceolate, rather acute; cymes few-flowered, on an elongoted naked peduncle; petals obovate, more than twice the length of the sepals; capsule oblong, a little exceeding the calyx. — *Eng. bot. t.* 93; *DC. prodr.* 1. *p.* 419; *Hook. fl. Bor.-Am.* 1. *p.* 104; *Torr. & Gr. fl. N. Am.* 1. *p.* 188. C. Pennsylvanicum, *Hornemann; DC. l. c.; Hook. l. c.* C. tenuifolium, *Pursh, fl.* 1. *p.* 321; *Torr. fl.* p. 460; *Darlingt. fl. Cest. p.* 278. C. elongatum, *Pursh, l. c.; Nutt. in journ. acad. Phil.* 7. *p.* 16.

Perennial. Stems cespitose, more or less assurgent or erect, 4 – 8 inches high. Leaves 10 – 15 lines long, and 1 – 2 lines wide, rather acute, and late in the season somewhat rigid, often fascicled in the axils. Flowers rather conspicuous. Sepals ovate-lanceolate, strongly one-nerved. Petals emarginate, or slightly bifid. Capsule sometimes one-third longer than the calyx. Seed reniform, muricate in curved lines.

Rocky places; rather common. May July. Scarcely distinct from the European *C. arvense.*

4. CERASTIUM OBLONGIFOLIUM, *Torr.* *Oblong-leaved Chickweed.*

Stems erect or declined, villous; leaves oblong-lanceolate, mostly obtuse; flowers numerous; peduncles viscid; petals obovate, 2-cleft, twice the length of the oblong obtuse sepals; capsule cylindrical, about twice as long as the calyx. *Torr. in Sill. jour.* 4. *p.* 63, *and fl.* 1. *p.* 460; *Torr. & Gr. fl. N. Am.* 1. *p.* 188. C. villosum, "*Muhl. cat. p.* 46"; *Darlingt. fl. Cest.* 1. *p.* 279. C. pubescens, *Goldie in Edin. phil. journ.* 4. *p.* 387. C. Pennsylvanicum, *Hook. fl. Bor.-Am.* 1. *p.* 104? (excl. the syn. of *C. tenuifolium*).

Perennial. Stems 6 – 12 inches high, rather stout, very villous, tomentose at and below the nodes. Leaves an inch or more in length (sometimes shorter), ovate and oblong-lanceolate,

variable in pubescence, sometimes nearly smooth except on the margins. Cyme 7 – 15-flowered. Flowers larger than in *C. arvense*. Petals cleft nearly one-third of their length. Seed muricate.

Rocky places; rare. May.

5. CERASTIUM NUTANS, *Raf.* *Nodding Chickweed.*

Viscid and pubescent; stems erect, weak, branching from the base, sulcate-striate; internodes finally much longer than the leaves; leaves lanceolate or oblong-lanceolate, the lowermost oblong-spatulate, acute; cymes much elongated, divaricate, many-flowered, with long filiform pedicels; petals oblong, bifid at the apex, scarcely twice as long as the obtuse sepals; capsule cylindrical, nearly three times the length of the calyx.—*Raf. prec. des decouv. p.* 36; *Torr. fl.* 1. *p.* 450 (excl. the syn. of *C. pubescens*); *DC. prodr.* 1. *p.* 420; *Hook. fl. Bor.-Am.* 1. *p.* 104; *Darlingt. fl. Cest. p.* 280; *Torr. & Gr. fl. N. Am.* 1. *p.* 189. C. longepedunculatum, *Muhl. cat. p.* 47. C. glutinosum, *Nutt. gen.* 1. *p.* 291.

Annual. Plant pale yellowish-green, very viscid, and covered with flocculent woolly pubescence. Stems 8 – 12 inches high. Leaves 8 – 12 lines or more in length. Petals cuneate at the base, slightly bifid. Capsule somewhat curved. Seeds muricate.

Low moist and rather shady places, particularly along rivulets. May.

TRIBE II. *SILENEÆ. DC.*

Sepals united into a cylindrical tube. Petals unguiculate, inserted with the stamens upon the stipe of the ovary. Capsule one-celled (sometimes 3 – 5-celled at the base).

CONSPECTUS OF THE GENERA.

6. Calyx 5-toothed, without scales at the base; petals 5; stamens 10.
   7. SILENE. Styles 3. Capsule 3-celled at the base.
   8. LYCHNIS. Styles 5. Capsule one-celled, or 5-celled at the base.
   9. SAPONARIA. Styles 2. Capsule one-celled throughout.

7. SILENE. *Linn.; Otth in DC. prodr.* 1. *p.* 367. *CATCHFLY.*

[From the Greek, *sialon*, saliva; in allusion to the viscid secretion on the stems.]

Calyx tubular, without scales at the base, 5-toothed. Petals 5, with slender claws, which usually are crowned with scales at the summit; limb 2- or many-cleft, sometimes entire. Stamens 10. Styles 3. Capsule 3-celled at the base, opening at the top by 6 teeth.

§ 1. BEHENANTHA. *Flowers solitary, or in paniculate cymes: calyx vesicular, inflated.*

1. SILENE STELLATA, *Ait.* (Plate XVI.) *Four-leaved Campion.*

Stem erect, branching, minutely pubescent; leaves whorled in fours, ovate-lanceolate, gra-

dually acuminate; cymes in a loose terminal panicle; petals lacerate-fimbriate, not crowned; stamens about the length of the petals.—*Ait. Kew.* (*ed.* 2.) 3. *p.* 84; *DC. prodr.* 1. *p.* 368; *Hook. fl. Bor.-Am.* 1. *p.* 88; *Darlingt. fl. Cest. p.* 272; *Torr. & Gr. fl. N. Am.* 1. *p.* 190. Cucubalus stellatus, *Linn.*; *Michx. fl.* 1. *p.* 271; *Bot. mag. t.* 1107; *Pursh, fl.* 1. *p.* 315; *Ell. sk.* 1. *p.* 514; *Torr. fl.* 1. *p.* 449; *Bigel. fl. Bost. p.* 184.

Perennial. Whole plant pulverulently pubescent. Stem 2 – 4 feet high, erect, somewhat 4-sided, slender. Leaves 2 – 3 inches long, sessile, with a long tapering point; the uppermost, and also the lowest ones, usually opposite. Flowers as large as in the common *Campion*. Calyx broadly campanulate. Petals white; the limb dilated, spreading. Capsule ovoid-globose, on a short woolly stipe. Seeds reniform, rough with concentric lines of rugose papillæ.

Dry woods; frequent. July – August.

2. SILENE ANTIRRHINA, *Linn.* *Snapdragon Catchfly.*

Annual; nearly smooth; stem erect, simple, or branching above; leaves lanceolate, acute, the upper ones linear; margins minutely ciliate-scabrous; cyme few-flowered; calyx ovoid, smooth and shining; petals small, obcordate, slightly crowned.—*Pursh, fl.* 1. *p.* 316; *Ell. sk.* 1. *p.* 517; *Torr. fl.* 1. *p.* 451; *Bigel. fl. Bost. p.* 183; *Hook. fl. Bor.-Am.* 1. *p.* 89; *Darlingt. fl. Cest. p.* 273; *Torr. & Gr. fl. N. Am.* 1. *p.* 191; *Dill. hort. Elth. p.* 422. *t.* 213.

Stem 1 – 2½ feet high, the lower part a little rough; a portion of the upper internodes viscid. Peduncles erect. Teeth of the calyx very short, purplish. Petals white or tinged with purple, only expanding towards evening, or in moist cloudy weather; sometimes wanting? Capsule ovoid, about the length of the calyx; the stipe very short. Seeds reniform, rough with elevated points.

Dry sandy and stony places. June – July.

3. SILENE NOCTIFLORA, *Linn.* *Night-flowering Catchfly.*

Viscidly pubescent; stem erect; lower leaves spatulate, upper ones linear-lanceolate; calyx cylindrical-ventricose, the alternate striæ veined; teeth very long, subulate; petals 2-parted.—*Eng. bot. t.* 291; *DC. prodr.* 1. *p.* 379; *Torr. & Gr. fl. N. Am.* 1. *p.* 192. Saponaria noctiflora, *Fenzl.*

Annual. Stem 1 – 2 feet high, simple or dichotomously branched above. Leaves about 2 inches long. Flowers rather large, sweet-scented, expanding only in the evening or in cloudy weather, white or pale rose-color. Seeds granulated.

Old fields in the northern parts of the State: introduced. July – August.

4. SILENE PENNSYLVANICA, *Michx.* *Wild Pink.*

Viscidly pubescent; stems numerous from the same root; leaves lanceolate, acute, the radical ones spatulate-oblanceolate; cyme several-flowered (3 – 7), contracted; petals obo-

vate, very obtuse, erosely crenulate, emarginate.—*Michx. fl.* 1. *p.* 272; *Pursh, fl.* 1. *p.* 316; *Ell. sk.* 1. *p.* 516; *Torr. fl.* 1. *p.* 450; *Bigel. fl. Bost. p.* 183; *DC. prodr.* 1. *p.* 380; *Bot. reg. t.* 247; *Torr. & Gr. fl. N. Am.* 1. *p.* 192. S. Caroliniana, *Walt. fl. Car. p.* 142. S. Virginica, *Willd. sp.* 2. *p.* 702? S. platypetala, *Otth in DC.* 1. *p.* 383.

Root fusiform, perennial. Stems 6 – 10 inches high, erect, or declined at the base. Radical leaves 2 – 4 inches long, and 3 – 5 lines wide at the broadest part, with a long tapering base. Calyx clavate, at length ventricose above, purplish, very viscid; the teeth short and rather obtuse. Stamens mostly included. Petals bright purplish-red, sometimes rose-color or almost white, spreading.

Dry rocky places. May – June. Common in the southern part of the State.

5. SILENE VIRGINICA, *Linn.* *Virginia Catchfly.*

Viscidly pubescent; stem simple; radical leaves spatulate, with ciliate petioles; cauline ones oblong-lanceolate; cyme several-flowered, loose; petals narrowly oblong, bifid.—*Linn. syst.* 2. *p.* 311 (in part); *Michx. fl.* 1. *p.* 272 (in part); *Ell. sk.* 1. *p.* 516; *Torr. fl.* 1. *p.* 450; *DC. prodr.* 1. *p.* 380; *Torr. & Gr. fl. N. Am.* 1. *p.* 192. S. Catesbæi, *Walt. fl. Car.* 1. *p.* 142; *DC. l. c.*

Root horizontal, perennial. Stem mostly erect, 1 – 2 feet high, branching above. Leaves 2 – 4 inches long and 3 – 6 lines wide, rather acute; petioles strongly ciliate. Flowers larger than in the preceding species. Calyx campanulate-cylindrical, at length ventricose; teeth lanceolate, acute. Petals crimson; the lamina more than twice as long as broad, conspicuously 2-cleft at the summit.

Yates county (*Dr. Sartwell*); the only known locality of this handsome species in the State. It is sometimes employed in the Western States (where it is common) as an anthelmintic; but its virtues are probably very feeble. See *Wood & Bache's U. S. Dispens. app.* 1087.

8. LYCHNIS. *Tourn.; Endl. gen.* 5250. *LYCHNIS.*

[From the Greek, *lychnos*, a lamp; the cotton-like substance on the leaves of some species having been used for the wicks of lamps.]

Calyx tubular, 5-toothed, without scales at the base. Petals 5, with slender claws, mostly crowned. Stamens 10. Styles 5. Capsule one-celled, or 5-celled at the base.

* GITHAGO, Desf. *Calyx cylindrical-campanulate, coriaceous; teeth very long: ovary without a stipe.*

1. LYCHNIS GITHAGO, *Lam.* *Cockle. Corn-cockle. Rose Campion.*

Hairy: stem dichotomous; flowers on long peduncles; leaves linear.—*DC. prodr.* 1. *p.* 387; *Torr. & Gr. fl. N. Am.* 1. *p.* 194. Agrostemma Githago, *Linn.; Eng. bot. t.* 576; *Torr. fl.* 1. *p.* 461; *Darlingt. fl. Cest. p.* 281.

Plant pale green, annual. Flowers large, bright purple, not crowned: limb obcordate.

Common in cultivated fields, particularly among wheat and rye. June. Introduced from Europe.

9. SAPONARIA. *Linn.; DC. prodr.* 1. *p.* 365. *SOAP-WORT.*

[From the Latin, *sapo*, soap; its mucilage having been used as a substitute for that article.]

Calyx tubular, 5-toothed, without scales at the base. Petals 5; claws as long as the calyx. Stamens 10. Styles 2. Capsule 1-celled throughout.

1. SAPONARIA OFFICINALIS, *Linn.* *Common Soap-wort. Bouncing Bet.*

Fascicles of flowers paniculate; calyx cylindrical, smooth; crown of the petals linear; leaves oval or oval-lanceolate.— *Smith, fl. Brit.* 3. *p.* 459; *Eng. bot. t.* 1060; *Pursh, fl.* 1. *p.* 314; *Torr. fl.* 1. *p.* 447; *Bigel. fl. Bost. p.* 179; *DC. prodr.* 1. *p.* 365; *Darlingt. fl. Cest. p.* 272; *Torr. & Gr. fl. N. Am.* 1. *p.* 195.

Perennial; about a foot high, spreading very much by the roots. Flowers large, often double, rose-color.

Road-sides, waste grounds, and about houses; common. July – August. Introduced.

The leaves form a lather with water. The plant was formerly used to cure the itch.

2. SAPONARIA VACCARIA, *Linn.* *Perfoliate Soap-wort.*

Flowers in paniculate cymes; calyx pyramidal, 5-angled, smooth; bracts membranaceous, acute; leaves ovate-lanceolate, sessile.— *DC. prodr.* 1. *p.* 365; *Torr. & Gr. fl. N. Am.* 1. *p.* 195.

Annual. Stem 1 – 2 feet high. Flowers rose-color.

Cultivated grounds; rare. July – August. Hardly naturalized.

TRIBE III. *MOLLUGINEÆ.*

Sepals united at the base. Disk none. Petals mostly none. Stamens hypogynous. Capsule completely 3 – 5*-celled.*

10. MOLLUGO. *Linn.; Endl. gen.* 5186. *INDIAN CHICKWEED.*

[An ancient name of a plant supposed to be *Galium Mollugo*, which resembles some of the species of this genus.]

Sepals 5, united at the base. Petals none. Stamens 3 – 5, opposite the sepals; or very rarely 6 – 10, when the exterior ones are alternate with the sepals, hypogynous. Disk none. Stigmas 3, linear. Capsule membranaceous, 3-valved, 3-celled, loculicidal, many-seeded. — Annual, diffusely branched plants. Leaves pseudo-verticillate or opposite. Flowers in axillary or dichotomous cymules or umbels.

1. MOLLUGO VERTICILLATA, *Linn.* *Carpet-weed.*

Stem depressed; leaves spatulate, pseudo-verticillate; pedicels one-flowered, forming a sessile umbel; seeds smooth.— *Michx. fl.* 1. *p.* 77; *Pursh, fl.* 1. *p.* 92; *Ell. sk.* 1. *p.* 183; *Torr. fl.* 1. *p.* 160; *Bigel. fl. Bost. p.* 48; *Darlingt. fl. Cest. p.* 96; *Torr. & Gr. fl. N. Am.* 1. *p.* 176.

Stem much branched in a dichotomous manner, spreading flat upon the ground, and forming a circular patch 6 – 18 inches in diameter. Leaves about 6 in a whorl; the upper ones oblanceolate. Sepals oblong, obtuse, 3-nerved, white inside and on the margins. Stamens mostly 3, sometimes 4. Capsule ovoid, somewhat triangular, roughened or torulose by the prominence of the enclosed seeds. Seeds reniform, smooth and shining, striate on the back.

Sandy fields, cultivated grounds, etc. June – September.

This genus, although placed by most botanists in the tribe *Alsineæ* of CARYOPHYLLACEÆ, differs in its want of petals and disk, and in its completely 3-celled capsule. Bartling refers it to PARONYCHIEÆ (*Illecebraceæ*), making it the type of his section *Molluginea*. Fenzl and Endlicher place it among PORTULACACEÆ, in the tribe *Molluginеæ*.

ORDER XX. ILLECEBRACEÆ. *R. Brown.* THE KNOT-GRASS TRIBE.

Calyx of 5 persistent sepals, which are distinct or united at the base. Petals 5, alternate with the sepals; often minute and resembling sterile filaments, frequently wanting. Stamens as many as the sepals and opposite them, or fewer, rarely twice as many, inserted into the edge of a disk that lines the base of the calyx. Ovary one-celled by the obliteration of the dissepiments, sometimes imperfectly 2 – 5-celled: styles 2 – 5, sometimes more or less combined, stigmatose along the inner surface. Fruit commonly a utricle, with a solitary seed; or a 2 – 5-valved, 1-celled, many-seeded capsule, with the placentæ in the axis. Seeds campulitropous. Embryo more or less curved around the outside of mealy albumen.— Small herbaceous (rarely suffruticose) plants, with opposite or fasciculate entire leaves and scarious stipules. Flowers often minute, axillary or terminal, cymose or glomerate, or sometimes nearly solitary in the axils of the leaves: bracts usually similar to the leaves.

This order differs from CARYOPHYLLACEÆ, in which it is included by Fenzl and Endlicher, chiefly in having scarious stipules.

TRIBE I. *ILLECEBREÆ. DC.*

Sepals often cuspidate or awned, usually more or less cucullate or concave at the apex internally. Petals resembling sterile filaments, or none. Styles or stigmas 2, *distinct or united. Utricle* 1*-seeded. — Leaves opposite, often crowded and fascicled.*

1. ANYCHIA. *Michx. fl.* 1. *p.* 112 (in part); *Juss. mem. mus.* 2. *p.* 389; *Torr. & Gr. fl. N. Am.* 1. *p.* 172. *FORKED CHICKWEED.*

Section of PARONYCHIA, *Fenzl & Endl.*

[From the Greek, *onyx, onychos*, a finger nail; a similar plant having been used for curing whitlows.]

Sepals ovate-oblong, united at the base, slightly concave, somewhat saccate at the apex, slightly mucronate on the back. Petals or sterile filaments none. Stamens 2, 3 or 5, inserted on the base of the sepals. Styles very short, distinct or united at the base, stigmatose within. Utricle included in the connivent sepals.— Annual herbs, with minute axillary or terminal, solitary or more or less clustered, nearly sessile, flowers. Leaves oblong or lanceolate, mostly punctate, somewhat petiolate, slightly ciliate.

1. ANYCHIA DICHOTOMA, *Michx.* *Common Forked Chickweed.*

Stem erect or spreading; stamens commonly 3. — *Michx. fl.* 1. *p.* 113; *Darlingt. fl. Cest. p.* 162; *Torr. & Gr. fl. N. Am.* 1. *p.* 172.

var. 1: stem more or less pubescent above; leaves varying from linear-lanceolate to elliptical; flowers more or less clustered.— *Torr. & Gr. l. c.* A. dichotoma, *Torr. fl.* 1. *p.* 273; *DC. prodr.* 3. *p.* 369. A. Canadensis, *Ell. sk.* 1. *p.* 307; *Hook. fl. Bor.-Am.* 1. *p.* 226. Queria Canadensis, *Linn.; Willd. sp. pl.* 1. *p.* 494.

var. 2: smooth; branches capillary; leaves oval or oblong, cuneiform at the base; flowers mostly solitary, slightly exserted from the stipules at their base.—*Torr. & Gr. l. c.* A. dichotoma, var. capillacea, *Torr. fl.* 1. *p.* 273. A. capillacea, *Nutt. gen.* 1. *p.* 158.

Plant 3 – 10 inches high, with numerous forking, and, usually, almost filiform branches; when growing in dry sterile situations, often of a purplish color. Leaves 4 – 10 lines long, minutely ciliate-scabrous, dotted with round minute immersed glands, which are at first somewhat pellucid, then whitish and opake, and finally brownish. Flowers scarcely the size of a small pin's head, greenish, solitary in the forks of the stem; in the second variety, the terminal ones in small leafy cymules; pedicels shorter than the flowers. Sepals with a minute point on the back close to the summit. Stamens rarely 5. Styles slightly united at the base, recurved: stigmas capitate. Utricle granulated with minute vesicles. Seed reniform, brownish, smooth.

Dry woods and hill-sides; very variable in size. On sterile, sunny hill-sides, it is often stunted, with more crowded and thicker branches.

TRIBE II. *SPERGULEÆ. Bartl.*

Sepals nearly plane. Petals usually manifest, sometimes wanting. Styles or stigmas 3 – 5. *Capsule one-celled,* 3 – 5 *valved, many-seeded: placenta central.*

1. SPERGULA. *Bartl. ord. nat. p.* 302; *Torr. & Gr. fl. N. Am.* 1. *p.* 174. *SPURREY.*

[From the Latin, *spargere*, to scatter; because it scatters its seeds abroad.]

Sepals nearly distinct. Petals 5, entire, mostly somewhat perigynous. Stamens 5 – 10, inserted with the petals. Styles 3 – 5. Capsule 3 – 5-valved, many-seeded. Seeds compressed, orbicular or reniform, often surrounded with a membranaceous margin. — Leaves mostly fascicled in the axils. Flowers loosely cymose.

§ 1. SPERGULA proper. — *Styles* 5, *distinct to the base. Capsule* 5-*valved; the valves opposite the sepals.*

1. SPERGULA ARVENSIS, *Linn.* *Corn Spurrey. Tares.*

Leaves verticillate and mostly fascicled, subulate-linear; stipules minute; peduncles reflexed in fruit; stamens 10; seeds rough, somewhat globose, with a narrow margin. — *Gært. fr. t.* 130; *Eng. bot. t.* 1536; *Pursh, fl.* 1. *p.* 320; *Ell. sk.* 1. *p.* 523; *Bigel. fl. Bost. p.* 185; *Torr. fl.* 1. *p.* 457; *Hook. fl. Bor.-Am.* 1. *p.* 92; *Torr. & Gr. fl. N. Am.* 1. *p.* 174. Spergularia arvensis, *A. St. Hil. fl. Bras.* 2. *p.* 178.

A foot long, erect or spreading. Stem swollen at the joints. Leaves 1 – 2 inches long, almost filiform, somewhat terete. Flowers in terminal divaricate naked cymes: pedicels of the fruit nearly an inch long. Sepals ovate. Petals white, rather longer than the calyx. Capsule the size of a small pea, about the length of the calyx. Seeds blackish, with an acute edge or narrow border.

Fields and waste places; introduced in grain from Europe. *Fl.* May – October. Cultivated on the continent of Europe, particularly in Holland and Germany, as fodder for sheep and cows. It is said greatly to enrich the milk of the latter. Hens are said to eat the plant greedily.

§ 2. SPERGULARIA, Pers. *Styles* 3. *Capsule* 3-*valved.* — Species of Arenaria, *Linn.*

2. SPERGULA RUBRA, *Torr. & Gr.* *Red-flowered Spurrey.*

Stems decumbent, much branched; leaves narrowly linear, acute or mucronate, somewhat fleshy; stipules ovate, cleft; sepals lanceolate, with broadly scarious margins; (petals red or rose-color;) seeds compressed. — *Torr. & Gr. l. c.* Spergularia rubra, *A. St. Hil. l. c.* Arenaria rubra, *Linn.; Torr. fl.* 1. *p.* 456; *DC. prodr.* 1. *p.* 401; *Cham. & Schlecht. in Linnæa,* 1. *p.* 52; *Hook. fl. Bor.-Am.* 1. *p.* 98. A. Canadensis, *Pers. syn.* 1. *p.* 504.

var. 1 : leaves usually shorter, or only a little longer than the internodes, somewhat mucronate, slightly fleshy; seeds not margined. — *Torr. & Gr. l. c.* A. rubra, *var.* campestris, *Linn.; DC. l. c.* A. rubra, *Bigel. fl. Bost. p.* 179.

var. 2 : leaves fleshy, usually much longer than the internodes, not mucronate; seeds not margined. — *Torr. & Gr. l. c.* A. rubra, *var.* marina, *Linn.; DC. l. c.* A. marina, *Bigel. fl. Bost. p.* 180 (excl. syn. *Sm.*).

Stems 3 – 10 inches long, at first erect, at length diffuse, smooth or pubescent: the var. 2. when growing in salt marshes, often nearly or quite smooth. Leaves about an inch long and scarcely a line wide, in maritime situations semiterete and fleshy, but in dry places narrower and scarcely succulent. Flowers axillary and solitary, and in terminal leafy cymules; or in leafy racemes. Pedicels reflexed after flowering; those of the fruit about half an inch long. Sepals scarious on the margin. Petals ovate, rather shorter than the sepals. Seeds somewhat reniform, compressed, without a trace of border.

The first variety occurs in sandy fields, and is not common: the other form is very common on the seacoast, and about the harbor of New-York; usually in salt marshes, but sometimes in wet sandy places. It grows along the Hudson as far as the water is brackish. Flowers from April to November.

SUBORDER SCLERANTHACEÆ. *Link.* THE KNAWEL TRIBE.

Calyx of 4 – 5 sepals; the tube urceolate. Petals none. Stamens 1, 5 or 10, inserted into the throat of the calyx-tube. Ovary 1-celled, with a solitary ovule: styles 2, distinct and stigmatose on the inside, or united to the summit. Fruit a utricle with a solitary seed, enclosed in the indurated tube of the calyx. Embryo curved around mealy albumen.— Small annual or perennial, diffusely branched plants. Leaves opposite, destitute of stipules. Flowers small, usually disposed in cymules.

This suborder is more nearly related to ILLECEBRACEÆ than to CARYOPHYLLACEÆ; differing from the former chiefly in the indurated calyx-tube, and in the want of stipules.

1. SCLERANTHUS. *Linn.; Endl. gen.* 5222. KNAWEL.

[Named from *skleros*, hard, and *anthos*, a flower; the base of the flower becoming indurated.]

Sepals 5. Stamens 10, rarely 5 or 2. Styles distinct.— Leaves somewhat connate-linear, with scarious margins. Flowers in axillary leafy cymules, greenish.

1. SCLERANTHUS ANNUUS, *Linn.* *Common Knawel.*

Annual; flowers mostly decandrous; sepals of the fructiferous calyx spreading, acute.— *Linn.; Willd. sp.* 2. *p.* 660; *Eng. bot. t.* 351; *Pursh, fl.* 1. *p.* 315; *Torr. fl.* 1. *p.* 448; *Bigel. fl. Bost. p.* 177; *DC. prodr.* 3. *p.* 378.

Plants spreading and forming tufts 3 – 6 inches or more in diameter, dichotomously much branched, somewhat pubescent. Leaves subulate, carinate, scarious and dilated at the base. Flowers inconspicuous, very numerous, nearly sessile. Sepals lanceolate, green, with a white scarious margin. Stamens sometimes only 5, shorter than the calyx. Seed lenticular, smooth, contained in a thin membranaceous pericarp, which is enclosed in the hardened base of the calyx.

A common weed in sandy fields and barren hill-sides; flowering from May to July. Probably an introduced plant.

ORDER XXI. PORTULACACEÆ. *Juss.* THE PURSELANE TRIBE.

Sepals 2 (rarely 3), mostly united at the base, free or rarely cohering with the base of the ovary. Petals 5, or very rarely 3, 4 or 6, imbricated in æstivation. Stamens variable in number, opposite the petals when of the same number, inserted with the petals into the base of the calyx, or hypogynous: filaments all fertile, distinct: anthers fixed by the middle, versatile or introrse. Ovary one-celled: styles 2 – 6, usually more or less combined, stigmatose along the inner surface. Capsule 1-celled, dehiscing transversely (like the lid of a box), or loculicidal with as many valves as stigmas. Seeds few or numerous, attached to a central placenta. Embryo curved around the outside of mealy albumen. —Succulent or fleshy insipid herbs. Leaves entire, alternate or opposite, without stipules. Flowers usually ephemeral.

1. PORTULACA. *Tourn.; Endl. gen.* 5174. *PURSELANE.*

[The name is of uncertain meaning.]

Sepals 2, united below, and cohering with the base of the ovary; the upper portion at length separating from the lower near the base, by a transverse line. Petals 4 – 6, inserted on the calyx, equal. Stamens 8 – 20. Style 3 – 6-cleft at the apex, or parted. Capsule ovoid-globose, dehiscing transversely near the middle. Seeds numerous, on filiform funiculi. — Humble fleshy herbs. Leaves scattered, often whorled near the flower, frequently with a tuft of hairs in the axils. Flowers axillary, in the forks of the stem, or crowded at the summit of the branches, expanding only in the morning sun, very fugacious.

1. PORTULACA OLERACEA, *Linn.* *Common Purselane.*

Stem diffuse; leaves cuneiform, the axils and nodes naked; flowers sessile; petals 5, cohering at the base; stamens 10 – 12; style almost wanting; stigmas 5, distinct. — *DC. plant. gras. t.* 123, *and prodr.* 3. *p.* 353; *Ell. sk.* 1. *p.* 534; *Bigel. fl. Bost. p.* 188; *Darlingt. fl. Cest. p.* 314; *Torr. & Gr. fl. N. Am.* 1. *p.* 196.

Annual. Stem fleshy, spreading on the ground, with the branches somewhat assurgent. Flowers in axillary and terminal clusters, small, yellow. Seeds reniform, with a short beak on one side, blackish, finely granulated.

Very common in gardens and waste places; doubtless an introduced plant in the Atlantic States, but apparently indigenous towards the Rocky Mountains. Flowers from July to August. Formerly used as a potherb and for pickling, but now not much esteemed for these purposes.

2. CLAYTONIA. *Linn.; Endl. gen.* 5180. *SPRING BEAUTY.*

[In honor of JOHN CLAYTON, a botanist of Virginia, who sent plants to Gronovius.]

Sepals 2, persistent, distinct or united at the base, ovate, mostly obtuse. Petals 5, hypogynous, unguiculate, the claws more or less united at the base. Stamens 5, inserted on the claws of the petals. Styles 3-cleft; the divisions stigmatose inside. Capsule 3-valved, 2 – 5-seeded. Seeds turgid, smooth or punctate, shining. — Smooth and rather succulent herbs. Stems simple, with a pair of opposite somewhat connate leaves (or with several alternate ones); radical leaves on long petioles. Racemes often one-sided. Flowers rose-color or white.

* CLAYTONIA proper. *Perennial: stems simple, arising from a subterranean cormus or rhizoma: cauline leaves 2, opposite, distinct: raceme terminal, rarely geminate.*

1. CLAYTONIA VIRGINICA, *Linn.* *Narrow-leaved Spring Beauty.*

Leaves all linear and linear-lanceolate, elongated and attenuated into a petiole below; radical ones very few; raceme at length elongated; pedicels slender, nodding; petals mostly emarginate. — *Michx. fl.* 1. *p.* 160; *Bot. mag. t.* 941; *Pursh, fl.* 1. *p.* 175; *Ell. sk.* 1. *p.* 306; *Bart. fl. Am. Sept. t.* 51; *Torr. fl.* 1. *p.* 259; *Bigel. fl. Bost. p.* 98; *Hook. fl. Bor.-Am.* 1. *p.* 224; *DC. prodr.* 3. *p.* 361; *Sweet, Brit. fl. gard.* (ser. 2.) *t.* 163; *Darlingt. fl. Cest. p.* 140; *Torr. & Gr. fl. N. Am.* 1. *p.* 198. C. grandiflora, *Sweet, l. c. t.* 216.

Cormus fleshy and farinaceous, situated deep in the ground. Stem 6 – 10 inches high, weak, erect or procumbent. Leaves 2 – 4 inches long and 2 – 3 lines wide, mostly rather acute, succulent. Racemes 5 – 12: pedicels recurved; the lowest ones with a small bract at the base. Sepals variable, usually with an abrupt blunt point, but often quite obtuse; a little recurved after flowering. Petals elliptical or obovate, sometimes rather acute, pale rose-color with deeper colored veins. Stamens shorter than the petals. Style longer than the stamens: stigmas spreading. Capsule ovoid-globose. Seeds tumid-lenticular, 3 – 5, black, minutely striate-rugose, but shining.

Low moist grounds, and damp woods. April – May.

2. CLAYTONIA CAROLINIANA, *Michx.* *Broad-leaved Spring Beauty.*

Leaves ovate-lanceolate or oval, somewhat spatulate, or abruptly decurrent into a petiole; radical ones very few, spatulate; pedicels slender, nodding; sepals and petals very obtuse.— *Michx. fl.* 1. *p.* 160; *Ell. sk.* 1. *p.* 306; *Torr. & Gr. fl. N. Am.* 1. *p.* 199. C. spathulæfolia, *Salisb. parad. Lond. t.* 71; *Pursh, fl.* 1. *p.* 174; *Nutt. gen.* 1. *p.* 152. C. spathulata, *Bigel. fl. Bost. p.* 98. C. Virginica, *var.* latifolia, *Torr. fl.* 1. *p.* 259. C. Virginica, *var.* spathulæfolia, *DC. prodr.* 3. *p.* 361; *Hook. fl. Bor.-Am.* 1. *p.* 224.

Cormus as in the preceding species. Stem 4 – 8 inches high. Leaves 1 – 3 inches long and 5 – 8 lines wide; the cauline ones sometimes oval. Sepals roundish-ovate. Petals entire or slightly emarginate. Seeds as in *C. Virginica.*

Woods, usually in hilly or mountainous places; common in the northern and western parts of the State, but not found in the valley of the Hudson below the Highlands. April. Very near the preceding species, and regarded by many botanists as only a variety of it.

GROUP 6. *Ovary compound, several-celled, with the placentæ in the axis; or the numerous carpels more or less coherent with each other, or with the central axis. Calyx free from the ovary, with a valvate æstivation. Stamens numerous, monadelphous, free, or somewhat polyadelphous, inserted with the petals into the receptacle or base of the calyx.*

ORDER XXII. MALVACEÆ. *Juss.* (in part); *DC.* THE MALLOW TRIBE.

Calyx of 5 (rarely 3 or 4) sepals, which are more or less united at the base; often with an involucel, so as to appear double: æstivation valvate. Petals hypogynous, as many as the sepals, twisted in æstivation. Stamens hypogynous, usually numerous, monadelphous: anthers one-celled, reniform. Ovary formed by the union of several carpels round a common axis, either distinct or cohering. Styles as many as the carpels, united or distinct. Fruit capsular, or rarely baccate; carpels one- or many-seeded, sometimes closely united, sometimes separate or separable; the dehiscence loculicidal or septicidal. Seeds with little or no albumen. Embryo curved: cotyledons twisted and doubled up. — Herbs or shrubs. Leaves alternate, stipulate, mostly palmately veined: pubescence commonly stellate.

CONSPECTUS OF THE GENERA.

1. MALVA. Calyx with a 3-leaved involucel. Capsules numerous, arranged in a circle round a central axis, one-seeded.
2. ALTHÆA. Involucel 6 – 9-cleft. Capsules numerous, one-seeded.
3. ABUTILON. Involucel none. Capsule consisting of 5 or more, 2-valved, 3 – 6-seeded, carpels.
4. SIDA. Involucel none. Carpels 5 or more, 2-valved, 1-seeded.
5. HIBISCUS. Involucel of several or many narrow leaflets. Stigmas 5. Capsule 5-celled; the cells several- (rarely 1-seeded.)

1. MALVA. *Linn.; Endl. gen.* 5271. *MALLOW.*

[The name is said to be altered from the Greek, *malachos*, soft; in allusion to the emollient nature of the species.]

Calyx 5-cleft, surrounded usually by an involucel of 3 (sometimes 1 – 2, or 5 – 6) oblong or setaceous bracteoles; very rarely naked. Capsules numerous (rarely only 5), dry, indehiscent, one-seeded, circularly arranged round the axis. Radicle inferior.

1. MALVA ROTUNDIFOLIA, *Linn.* *Dwarf Mallow. Running Mallow.*

Stem prostrate; leaves cordate-orbicular, obtusely 5-lobed, the lobes crenately toothed; petioles pubescent; pedicels axillary, declined in fruit; segments of the calyx acutely trian-

gular; bracteoles oblong-linear; carpels numerous, wrinkled. — *Eng. bot. t.* 1092; *Pursh, fl.* 2. *p.* 454; *Ell. sk.* 2. *p.* 163; *Darlingt. fl. Cest. p.* 395; *Torr. & Gr. fl. N. Am.* 1. *p.* 225.

Root perennial. Stem 8 – 18 inches long, more or less pubescent. Leaves 1 – 2½ inches in diameter, on elongated petioles. Flowers about half an inch in diameter. Petals rose-colored or nearly white, with purple veins.

Common in waste grounds, and about houses; often a troublesome weed in gardens. Like most plants of the order, it is mucilaginous, and is often employed as a popular article of medicine; the leaves being used for poultices, and for demulcent drinks. It is of European origin, but has become naturalized in most parts of North America.

2. MALVA SYLVESTRIS, *Linn.* *High Mallow.*

Stem erect, herbaceous; leaves somewhat acutely 5 – 7-lobed; peduncles and petioles hairy; petals obcordate, three times as long as the calyx. — *Eng. bot. t.* 671; *Beck, bot. p.* 57; *Darlingt. fl. Cest. p.* 394.

Root perennial. Stem 2 – 3 feet high, branched. Leaves 2 – 3 inches wide. Flowers large, 3 – 4 together, axillary. Petals obcordate, purplish rose-color, veined.

Naturalized in some parts of Westchester county (*Dr. Mead*).

2. ALTHÆA. *Cavan. diss.* 2. *p.* 91; *Endl. gen.* 5270. *MARSH-MALLOW.*

[From the Greek, *altho*, to cure; from the salutary effects of its mucilaginous roots.]

Calyx surrounded by a 6 – 9-cleft involucel. Carpels numerous, indehiscent, one-seeded, arranged in a circle round the axis.

1. ALTHÆA OFFICINALIS, *Linn.* *Common Marsh-mallow.*

Leaves ovate, or somewhat cordate, softly tomentose on both sides, toothed, entire or somewhat 3-lobed; peduncles axillary, many-flowered, much shorter than the leaves.— *Eng. bot. t.* 147; *Bigel. fl. Bost. p.* 259; *Torr. compend. p.* 255; *DC. prodr.* 1. *p.* 436; *Darlingt. fl. Cest. p.* 395; *Torr. & Gr. fl. N. Am.* 1. *p.* 229.

Root perennial, fusiform, white. Plant densely clothed with a soft velvety pubescence. Stem 2 feet high or more, erect. Leaves 2 – 4 inches long. Peduncles 3 – 6-flowered. Involucre usually 9-parted. Flowers somewhat paniculate, an inch or more in diameter, pale rose-color.

Borders of salt marshes on the north side of Long Island, Oyster Bay, Flushing, &c. *Fl.* August – September. Introduced from Europe.

3. ABUTILON. *Dill.; Endl. gen.* 5292. *INDIAN MALLOW.*

[A name of uncertain origin.]

Calyx 5-cleft, without an involucel. Ovary 5- to many-celled, with 3 (or rarely more) ovules in each cell. Capsules composed of 5 or more, 2-valved, 3- (rarely 4 – 6-) seeded carpels.— Leaves cordate, rarely somewhat lobed. Peduncles axillary, solitary or rarely in pairs, 1 – 2- or many-flowered; sometimes (by the abortion of the upper leaves) in terminal racemes.

1. ABUTILON AVICENNÆ, *Gært.* *Velvet-leaf.*

Leaves orbicular-cordate, velvety-tomentose, acuminate, crenately toothed; peduncles shorter than the petioles; carpels about 15, truncate, furnished with two oblique beaks, hairy. — *Gært. fr.* 2. *p.* 251, *t.* 135; *Torr. & Gr. fl. N. Am.* 1. *p.* 230. Sida Abutilon, *Linn.; Pursh, fl.* 2. *p.* 253; *Ell. sk.* 2. *p.* 162; *DC. prodr.* 1. *p.* 470; *Torr. compend. p.* 255; *Darlingt. fl. Cest. p.* 397.

Annual. Stem 2 – 5 feet high, with spreading branches. Leaves 4 – 7 inches in diameter, with a slender abrupt acumination. Flowers axillary; primary ones solitary: from the side of the pedicel arises a short slender branch, bearing several clustered flowers, which are often abortive, and one or two small leaves. Corolla orange-yellow. Capsule an inch in diameter, blackish when mature, crowned with the numerous long beaks of the carpels, which spread in a radiated manner.

Waste places, gardens and road-sides. *Fl.* August – October. Introduced from India, and now abundantly naturalized in the middle and southern States.

4. SIDA. *Linn.; Cavan. diss.* 1. *p.* 5. *SIDA.*

[An ancient Greek name, said to have been applied to some malvaceous plant.]

Calyx 5-cleft, without an involucel, or rarely with 1 – 2 setaceous bracteoles. Ovary 5- or many-celled, with a single ovule in each cell. Capsule consisting of 5 or more, 1-seeded, usually 2-valved carpels. Radicle (by the resupination of the seed) superior.

1. SIDA SPINOSA, *Linn.* *Prickly Sida.*

Stem minutely pubescent; leaves ovate-lanceolate, serrately toothed, with a somewhat spiny tubercle at the base of the petiole; stipules setaceous; pedicels axillary, solitary or several together, mostly shorter than the petioles; carpels 5, each with two beaks. — *Michx. fl.* 2. *p.* 43; *Pursh, fl* 2. *p.* 452; *Ell. sk.* 1. *p.* 161; *DC. prodr.* 1. *p.* 460; *Darlingt. fl. Cest. p.* 397; *Torr. & Gr. fl. N. Am.* 1. *p.* 231.

Annual. Stem a foot or eighteen inches high, somewhat branched from near the base. Leaves 1 – 2 inches long, and half an inch wide, obtuse or cordate at the base: petioles 6 – 8 lines long. Peduncles articulated near the flower. Calyx hemispherical, 5-angled. Petals obovate, yellow. Carpels with two erect hairy beaks, easily separable when ripe. Seeds dark purplish-brown, smooth.

Road-sides three or four miles south of Peekskill (*Dr. Mead*). Probably an introduced plant in the State of New-York.

5. HIBISCUS. *Linn.; Endl. gen.* 5277. HIBISCUS.

[An ancient Greek name for some malvaceous plant.]

Calyx 5-cleft, or 5-toothed, surrounded by a many- or sometimes few-leaved involucel, the leaflets of which are usually distinct, but sometimes more or less united. Petals not auricled on one side, Stigmas 5. Ovary 5-celled; the cells with many or few ovules. Carpels 5, united into a 5-celled loculicidal capsule; margin of the valves not introflexed; the cells several- (rarely by abortion one-) seeded.

§ 1. PENTASPERMUM, *DC.* *Cells of the capsule one-seeded.*

1. HIBISCUS VIRGINICUS, *Linn.* *Virginian Hibiscus. Sweating-weed.*

Roughish-tomentose; leaves cordate-ovate, acuminate, unequally serrate-toothed, upper ones undivided, lower ones 3-lobed; pedicels longer than the petioles; flowers in paniculate racemes, nodding; column declined; capsule hispid. — *Jacq. ic. rar.* 1. *t.* 142; *Michx. fl.* 2. *p.* 46; *Pursh, fl.* 2. *p.* 456; *Ell. sk.* 2. *p.* 167; *DC. prodr.* 1. *p.* 447; *Torr. & Gr. fl. N. Am.* 1. *p.* 236. H. clypeatus, *Walt. fl. Car. p.* 177.

Perennial. Stem 2 – 4 feet high. Leaves 2 – 3 inches long; the upper and lower ones usually entire, those about the middle of the stem more or less 3-lobed. Flowers about two inches in diameter, numerous: peduncles 1 – 2 inches long. Involucel of 8 – 9 very narrow leaves. Petals bright rose-color, obovate-cuneate, hairy on one side of the outer surface. Column slender, antheriferous above the middle. Capsule with very acute angles. Seeds smooth: radicle inferior.

Borders of salt marshes on the north side of Long Island. I never found this plant on Long Island myself, but I saw it in a collection made by the late Dr. S. L. Mitchill, I believe in the neighborhood of Oyster Bay. *Fl.* August.

§ 2. ABELMOSCHUS, *DC.* *Cells of the capsule many-seeded: seeds smooth, or with a villous line on the back: leaves of the involucel* 8 – 15, *distinct, entire.*

2. HIBISCUS MOSCHEUTOS, *Linn.* *Mallow Rose.*

Leaves ovate, acuminate, serrate, often 3-lobed, whitish tomentose underneath, somewhat scabrous-pubescent above; peduncles (1-flowered) and petioles often united. — *Cavan. diss.* 3. *t.* 65. *f.* 1 *and* 2; *Michx. fl.* 2. p. 47; *Bot. mag. t.* 882; *Pursh, fl.* 2. *p.* 445; *Ell. sk.* 2. *p.* 165; *DC. prodr.* 1. *p.* 450; *Torr. compend. p.* 255; *Hook. fl. Bor.-Am.* 1. *p.* 107; *Torr. & Gr. fl. N. Am.* 1. *p.* 237. H. palustris, *Linn.; Pursh, l. c.*

Perennial. Stem 3 – 5 feet high, minutely pubescent. Leaves about 5 inches long and 3 wide, mostly obtuse at the base; velvety underneath, unequally dentate-serrate, sometimes with three short acute lobes: petioles an inch and a half long. Peduncles either free or coalescing with the petioles at the base, articulated near the calyx. Leaflets of the involucel linear. Flowers about as large as in the common *Hollyhock*, pale purple or sometimes nearly white, with or without a crimson centre. Petals obovate. Stamineal column about one-third the length of the petals. Styles exserted: stigmas large, capitate. Capsule as large as in *H. Syriacus*.

Borders of marshes, particularly near salt water, but not rare in the interior of the State. August – September. A showy plant, sometimes cultivated in gardens.

§ 3. TRIONUM, *Medik.* *Cells of the carpel many-seeded: seeds smooth; involucel many-leaved: calyx membranaceous, at length inflated. — Annual plants.*

3. HIBISCUS TRIONUM, *Linn.* *Bladder Ketmia. Venetian Mallow.*

Leaves toothed; lower ones nearly undivided, upper ones deeply 3-parted; lobes lanceolate, the intermediate one very long. — *DC. prodr.* 1. *p.* 453; *Beck, bot. p.* 58; *Darlingt. fl. Cest. p.* 396. H. pallidus, *Raf.*

Stem 12 – 18 inches high, sparingly hispid. Leaves somewhat hairy; segments incisely toothed or almost pinnatifid. Flowers axillary, solitary. Involucel of 9 – 10 linear leaflets, hispid. Calyx large, with about twenty prominent hispid ribs, 5-cleft, 5-winged at the apex. Petals greenish-yellow with a purple spot at the base. Seeds rough.

In gardens and cultivated grounds: partially naturalized. A native of the south of Europe and Africa. July – August.

ORDER XXIII. TILIACEÆ. *Juss.* THE LINDEN TRIBE.

Calyx of 4 – 5 deciduous sepals; the æstivation valvate. Corolla of 4 – 5 hypogynous petals, rarely wanting. Stamens usually indefinite, hypogynous: filaments distinct, or often in 3 – 5 clusters: anthers 2-celled. Disk often with 4 – 5 glands (transformed stamens) at the base of the petals. Ovary of 2 – 10 united carpels: styles united: stigmas as many as the carpels. Fruit a 2 – 5-celled capsule with several seeds in each cell, or coriaceous or drupaceous, sometimes by abortion 1-celled and 1 – 2-seeded. Seeds anatropous. Embryo in the axis of fleshy albumen: cotyledons foliaceous, flat.— Trees or shrubby plants, with alternate leaves, deciduous stipules and axillary flowers.

1. TILIA. *Linn.*; *Vent. monog. Til.* 1802; *Endl. gen.* 5373. *LINDEN or LIME TREE.*

[A name of obscure origin.]

Sepals and petals 5. Stamens numerous, usually somewhat united into five parcels; the central one of each parcel (in the North American species) transformed into a petaloid scale. Ovary globose, villous, 5-celled; the cells with 2 ovules. Fruit coriaceous or woody, scarcely globose, by abortion 1-celled, 1 – 2-seeded.— Trees with obliquely cordate leaves and a tough fibrous bark. Flowers cymose, with the lower part of the peduncle adnate to a large foliaceous bract.

1. TILIA AMERICANA, *Linn.* *Whitewood. Basswood.*

Leaves cordate or truncate at the base, somewhat coriaceous, smooth, abruptly acuminate; petals obtuse or truncate, crenate at the apex. — *Willd. sp.* 2. *p.* 1261; *Michx. f. sylv.* 2. *p.* 233. *t.* 131; *Bigel. fl. Bost. p.* 214; *Torr. & Gr. fl. N. Am.* 1. *p.* 239. T. glabra, *Vent. l. c. t.* 1. *f.* 1; *Pursh, fl.* 2. *p.* 362; *Ell. sk.* 2. *p.* 2; *DC. prodr.* 1. *p.* 513; *Hook. fl. Bor.-Am.* 1. *p.* 108; *Darlingt. fl. Cest. p.* 312. T. Canadensis, *Michx. fl.* 1. *p.* 306.

A large tree, often 60 – 80 feet high and 2 – 4 feet in diameter, with grayish bark and soft white wood. Leaves 3 – 5 inches long and about the same in breadth, coarsely and mucronately serrate, with a small tuft of reddish hairs in the axils of the veins underneath: petioles about 2 inches long. Peduncle about 4 inches long, trichotomously cymose at the summit, the lower half firmly united to a linear-oblong yellowish foliaceous bract, the free portion pendulous. Flowers nearly an inch in diameter. Sepals triangular-lanceolate, pubescent externally, woolly within. Petals yellowish-white, nearly twice as long as the calyx. Scales (staminodia) nearly as long as the petals, and resembling them in form. Stamens shorter than the petals. Style variable in length, sometimes longer, sometimes shorter than

the petals, hairy below. Fruit the size of a large pea, nearly globose or slightly oval, covered with a dense short gray pubescence. Seed usually solitary, obovoid, brownish.

Woods, usually in fertile soil. *Fl.* Early in June. *Fr.* September.

A beautiful and useful tree. The wood is easily wrought. It is sometimes formed into wooden bowls; and in places where the Tulip-tree does not grow, it is used for chair seats and the pannels of coach bodies. The bark, as in all the species, is tough, and may be manufactured into an inferior cordage. As a shade tree in cities, it is objectionable, being very generally attacked by caterpillars; and the bark readily separating in long strips, is peeled off by vicious boys.

GROUP 7. *Ovary compound, or of several carpels adhering to a central axis, free from the calyx, which is mostly imbricated in æstivation. Stamens as many or twice as many as the petals, inserted on the receptacle, commonly monadelphous at the base. Flowers perfect.*

ORDER XXIV. LINACEÆ. *DC.* THE FLAX TRIBE.

Sepals 5 (sometimes 4), distinct or united at the base, persistent: æstivation imbricated. Petals as many as the sepals and alternate with them, hypogynous, with short claws, fugacious: æstivation twisted. Stamens as many as the petals (often with intermediate teeth or abortive stamens), united at the base in a hypogynous ring. Ovary of 5 (rarely 3 – 4) united carpels: styles filiform, distinct. Capsule globose, 5- (or sometimes 3 – 4-) celled; each cell completely or partially divided by a spurious longitudinal dissepiment, proceeding from the back (or dorsal suture); each spurious cell one-seeded: dehiscence septicidal. Seeds suspended from near the summit of the cell: testa smooth and usually shining, mucilaginous when moistened. Embryo straight, flat, fleshy and oily, without albumen. Endopleura tumid, and resembling a thin albumen. — Herbaceous or suffrutescent plants. Leaves entire and sessile, without stipules, alternate or opposite. Flowers terminal, often corymbose or panicled.

1. LINUM. *Linn.; Endl. gen.* 6056. *FLAX.*

["*Llin*, in Celtic, signifies thread; whence *linon*, in Greek, and *linum*, its derivation in Latin." LOUD.]

Sepals (distinct, entire), petals and stamens 5. Styles 5, or rarely 3.

1. LINUM VIRGINIANUM, *Linn.* *Wild Flax.*

Smooth; stem corymbosely branching above; leaves alternate, oblong-lanceolate or linear, the lowermost oblong or spatulate; divisions of the corymbose panicle racemose, leafy; flowers (yellow) on short pedicels; sepals ovate, mucronate, 1-nerved, a little shorter than the mature globose-depressed capsule.—*Walt. fl. Car. p.* 117; *Michx. fl.* 2. *p.* 36; *Pursh, fl.* 1. *p.* 210; *Ell. sk.* 1. *p.* 375; *Torr. fl.* 1. *p.* 330; *Bigel. fl. Bost. p.* 123; *DC. prodr.* 1. *p.* 424; *Hook. fl. Bor.-Am.* 1. *p.* 105; *Darlingt. fl. Cest. p.* 210; *Torr. & Gr. fl. N. Am.* 1. *p.* 204.

Root biennial. Stem 1 – 2 feet high, slender, often with a tuft of short leafy stolons at the root. Leaves about an inch long, marked with minute pellucid dots, rarely opposite. Flowers about one-fourth of an inch in diameter; the pedicels 1 – 3 lines long, racemose and somewhat secund. Capsule scarcely 2 lines in diameter; splitting at maturity through both the true and the (complete) spurious dissepiments, into 10 indehiscent half-carpels or cocci. Seeds oblong, dull, yellowish.

Dry open woods, hill-sides and fields; common. *Fl.* June – August.—The fibre of the stem has but little strength.

2. LINUM USITATISSIMUM, *Linn.* *Common Flax.*

Smooth; stem branching above; leaves alternate, linear-lanceolate, very acute; panicle corymbose, loose; sepals ovate, acute, 1-nerved (3-nerved at the base), membranaceous on the margin; petals somewhat crenate (blue); capsule acuminate.—*Smith, fl. Brit.* 1. *p.* 342; *Eng. bot. t.* 1357; *Pursh, fl.* 1. *p.* 210; *Torr. fl.* 1. *p.* 330; *Torr. & Gr. fl. N. Am.* 1. *p.* 204.

Annual. Stem 2 – 3 feet high. Leaves 3-nerved. Flowers large: petals obovate. Capsule depressed-globose.

In fields; not uncommon: scarcely naturalized. *Fl.* June – July. *Fr.* August.

ORDER XXV. GERANIACEÆ. *DC.* THE GERANIUM TRIBE.

Calyx of 5 persistent sepals, which are imbricated in æstivation. Corolla 5-petalled, hypogynous or somewhat perigynous : petals alternate with the sepals, distinct, unguiculate, twisted in imbrication. Stamens usually twice as many as petals, and inserted with them ; some of them occasionally sterile : filaments broad, somewhat monadelphous at the base. Ovary composed of 5 two-ovuled carpels, placed alternate with the sepals round the base of an elongated axis *(gynobase)*. Styles cohering with the axis, free at the summit, stigmatose on the inner side. Carpels dry, 1-seeded, distinct at maturity, and separating from the axis by the twisting or curling back of the persistent style from the base upwards, mostly dehiscent by the inner suture. Seeds without albumen. Cotyledons convoluted and plaited. — Herbs or shrubby plants, commonly strong-scented. Leaves palmately veined and usually lobed, mostly with stipules. Flowers regular, or somewhat irrregular.

1. GERANIUM. *Linn.* (in part) ; *Endl. gen.* 6046. *CRANESBILL.*

[From *geranos*, a crane; the pointed fruit resembling the bill of that bird.]

Sepals equal. Petals 5, equal. Stamens 10, all fertile ; alternate ones longer, with a nectariferous gland at the base. Persistent styles at length spirally revolute, smooth on the inside.— Herbaceous or rarely suffrutescent plants. Peduncles 1 – 2- (rarely 3-) flowered.

* *Perennial.*

1. GERANIUM MACULATUM, *Linn.* *Spotted Geranium, or Cranesbill.*

Stem erect, somewhat angular, dichotomous above ; leaves 3 – 5-parted ; the segments acute, cuneiform below, incisely serrate above ; radical leaves on long petioles ; uppermost opposite ; sepals sparsely villous, the hairs scarcely glandular ; petals entire ; filaments slightly ciliate at the base. — *Michx. fl.* 2. *p.* 38 ; *Ell. sk.* 2. *p.* 157 ; *Bigel. med. bot. t.* 8, *and fl. Bost. p.* 256 ; *DC. prodr.* 1. *p.* 642 ; *Torr. compend. p.* 254 ; *Hook. fl. Bor.-Am.* 1. *p.* 115 ; *Darlingt. fl. Cest. p.* 392 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 206.

Root somewhat ligneous, perennial. Stem 12 – 18 inches high, clothed (as are also the petioles) with a retrorse pubescence. Leaves 2 – 3 inches in diameter, hairy-pubescent ; the lobes incisely toothed or cleft. Stipules lanceolate. Peduncles mostly 2-flowered. Pedicels an inch or more in length. Flowers about an inch in diameter. Sepals oblong or oval-lanceolate, sparsely clothed, particularly about the margins, with long villous hairs, which are mostly tipped with a very minute gland. Petals purple, obovate, with a small dense tuft of

hairs on the inside of the claw. Stamens in a double series, the exterior alternating with the petals, the inner opposite to them : filaments (under a lens) slightly ciliate at the base. Seeds minutely reticulated.

Open woods, etc.; common. Flowers from the end of April to June.

The root of this plant is a valuable astringent; being equal to the officinal Kino and Catechu. See *Wood and Bache's U. S. Dispens.* 330.

** *Annual.*

2. GERANIUM CAROLINIANUM, *Linn.* *Carolinian Cranesbill.*

Stem diffusely branched; pubescence simple; leaves deeply 5-lobed or parted; segments incisely lobed or toothed; peduncles and pedicels scarcely longer than the sepals, rather crowded at the summit of the branches; petals cuneate-oblong, slightly emarginate, about the length of the awned sepals; carpels hairy; seeds oval, minutely reticulated.— *Walt. fl. Car. p.* 175; *"Cavan. diss. t.* 84. *f.* 1, *and t.* 124. *f.* 2." ex *DC.; Michx. fl.* 2. *p.* 28; *Pursh, fl.* 2. *p.* 449; *Ell. sk.* 2. *p.* 157; *DC. prodr.* 1. *p.* 643; *Hook. fl. Bor.-Am.* 1. *p.* 115; *Darlingt. fl. Cest. p.* 392; *Torr. & Gr. fl. N. Am.* 1. *p.* 207.

var. Pubescence partly glandular; peduncles and pedicels much longer than the sepals; flowers larger; petals obovate, conspicuously emarginate. G. dissectum, *Pursh?*

Root somewhat fusiform. Plant somewhat hoary with a spreading or retrorse pubescence, at first erect or oblique, at length diffuse, 6 – 12 inches long. Leaves 1 – 2 inches in diameter, 5-lobed almost to the base, the ultimate segments rather obtuse. Peduncles, in the common variety, usually much crowded among the leaves at the extremity of the branches, and appearing umbellate or fasciculate; in the other form, they are an inch or two long, and the pedicels (of the fruit) full an inch in length. Calyx almost villous: awns about one-third the length of the sepals. Petals rose-color or nearly white. Seeds finely reticulate under a lens.

Dry barren fields and hill-sides; rather common: the *variety*, in Yates county (*Dr. Sartwell*). May – June. The form described as a variety seems to be pretty constant, but it is hardly distinct from *G. Carolinianum.*

3. GERANIUM PUSILLUM, *Linn.* *Small-flowered Cranesbill.*

Stem procumbent, minutely pubescent; leaves reniform or nearly orbicular, deeply 5 – 7-lobed; lobes of the lower leaves 3-cleft, of the upper ones entire; petals emarginate, about the length of the hairy, acute (not mucronate) sepals; carpels minutely pubescent; seeds smooth.—*Eng. bot. t.* 385; *Muhl. cat. p.* 64; *Torr. compend. p.* 254; *DC. prodr.* 1. *p.* 643; *Torr. & Gr. fl. N. Am.* 1. *p.* 207.

Stem 1 – 2 feet long, spreading, very slender. Leaves slightly pubescent, from scarcely half an inch to an inch in diameter; segments oblong-cuneiform. Peduncles 2 – 3 lines, and

the pedicels half an inch or more in length. Flowers 2 – 3 lines in diameter. Petals obovate, pale purple. Alternate stamens usually sterile.

Sandy soils, Long Island, a few miles from Brooklyn, and in the western part of the State. *Fl.* May – August. Our plant agrees well with European specimens of *G. pusillum*, and is possibly only naturalized in this country.

4. GERANIUM ROBERTIANUM, *Linn.* *Herb Robert.*

Diffusely branched, hairy; leaves ternately or quinately parted; segments pinnatifid; lobes mostly incised or toothed; petals entire, twice the length of the mucronate-awned sepals; carpels wrinkled, not hairy; seeds smooth. — *Willd. sp.* 3. *p.* 714; *Pursh, fl.* 2. *p.* 449; *Bigel. fl. Bost. p.* 257; *Torr. compend. p.* 254; *DC. prodr.* 1. *p.* 644; *Torr. & Gr. fl. N. Am.* 1. *p.* 207.

Stems usually several from one root, 6 – 15 inches long, of a dark red color, brittle, hirsute with spreading hairs. Leaves about 2 inches in diameter; lower ones with 5, upper ones with 3 divisions; ultimate segments mucronate. Peduncles long and slender. Flowers about half an inch in diameter. Sepals purplish. Petals obovate-spatulate, purple, sometimes pale or nearly white.

Moist rocky situations; common. June – October.—The whole plant exhales a heavy and rather disagreeable odor, especially when bruised or handled.

2. ERODIUM. *L'Herit.; Endl. gen.* 6045. *HERON'S-BILL* or *STORK'S-BILL.*

[From the Greek, *erodios*, a heron; the fruit resembling the head and beak of that bird.]

Sepals equal, regular. Petals 5, mostly equal. Stamens 10; the 5 exterior (opposite the petals) shorter and sterile; the perfect ones with a nectariferous gland at the base. Persistent styles bearded on the inside, at length spirally twisted. — Peduncles axillary or opposite the leaves: flowers umbellate. Cotyledons sometimes pinnately lobed.

1. ERODIUM CICUTARIUM, *Smith.* *Hemlock Heron's-bill.*

Stem prostrate or diffuse, hairy; leaves pinnately divided; segments sessile, pinnatifid, incised or acute; peduncles several flowered; petals unequal. — *Eng. bot. t.* 1768; *DC. prodr.* 1. *p.* 646; *Hook. fl. Bor.-Am.* 1. *p.* 116; *Torr. & Gr. fl. N. Am.* 1. *p.* 208. Geranium cicutarium, *Linn.*

Leaves 2 – 4 inches long, oblong, with numerous pinnatifid lobes. Flowers as large as in *G. pusillum*.

Gravelly shore of Oneida Lake, near Rotterdam; abundant. May – June. Probably introduced.

ORDER XXVI. OXALIDACEÆ. *DC.* THE WOOD-SORREL TRIBE.

Calyx of 5 persistent equal sepals, imbricated in æstivation. Corolla of 5 equal hypogynous deciduous petals, twisted in æstivation. Stamens 10, hypogynous; the filaments broad, and somewhat united at the base. Ovary of 5 united carpels placed opposite the sepals: styles distinct: stigmas capitate or pencillate. Capsule usually membranaceous, 5-lobed, 5-celled, opening by the dorsal suture, 1 – several-seeded. Seeds with a loose fleshy arilliform epidermis, which bursts elastically when ripe. Albumen between fleshy and cartilaginous. Embryo straight, as long as the albumen, with a rather long radicle: cotyledons broad and foliaceous. — Mostly low herbaceous plants (rarely suffrutescent or arborescent), with an acid juice. Leaves alternate, compound: leaflets usually obcordate.

1. OXALIS. *Linn.; Endl. gen.* 6058. *WOOD-SORREL.*

[From the Greek, *oxys*, sharp or sour; in allusion to the strong acid taste of the plant.]

Sepals distinct, or only united at the base. Capsule oblong or somewhat globose, membranaceous. Seeds 1, or commonly several in each carpel: testa 5 – 10-ribbed, transversely rugose. — Perennial (rarely annual) herbs; caulescent or stemless. Leaves in all the North American species trifoliolate, circinate in vernation: leaflets articulated to the petiole. Stipules coherent with the base of the petiole, or wanting.

1. OXALIS ACETOSELLA, *Linn.* *Common Wood-sorrel.*

Rhizoma creeping, scaly; leaflets obcordate, puberulent; scapes at length longer than the leaves, one-flowered, with 2 bracteoles above the middle; petals oblong-obovate (white, with red veins); styles and longer stamens of equal length, longer than the sepals. — *Eng. bot. t.* 762; *Michx. fl.* 2. *p.* 38; *Pursh, fl.* 1. *p.* 322; *Torr. fl.* 1. *p.* 461; *Bigel. fl. Bost. p.* 257; *DC. prodr.* 1. *p.* 700; *Hook. fl. Bor.-Am.* 1. *p.* 118 (partly); *Torr. & Gr. fl. N. Am.* 1. *p.* 211. O. Americana, *Bigel. in DC. l. c.; Zucc. mon. Oxal. p.* 35.

Rhizoma scaly and somewhat toothed with the persistent and somewhat fleshy bases of the petioles. Petioles 2 – 3 inches long: leaflets broadly obcordate. Scape 3 – 5 inches long. Flower about three-quarters of an inch in diameter, drooping. Sepals villous-ciliate, with reddish hairs. Petals often obliquely emarginate, yellow at the base. Stigmas 2-lobed. Cells of the capsule about 2-seeded.

In woods; often on high mountains; west and north of Catskill. June. — The American plant is identical with the European, except that the petals of the former are for the most

part emarginate, while they are only occasionally so in the latter. Like the rest of the species, the whole plant has an agreeably acid flavor, nearly as intense as that of lemons. The expressed juice yields, when purified and evaporated, crystals of the binoxalate of potash, and was formerly sold under the name of *Salt of Sorrel*, for the purpose of removing inkstains from linen.

2. Oxalis violacea, *Linn.* *Violet Wood-sorrel.*

Bulb scaly ; leaflets obcordate, broader than long, nearly smooth ; scapes longer than the leaves, 3 – 9-flowered ; pedicels umbellate, with minute bracts at the base ; sepals with a thickened orange-colored tip ; petals obovate (violet) ; filaments usually hairy, the exterior ones rather longer than the styles. — *Jacq. Oxal. p.* 35. *t.* 80. *fig.* 2. fide *Willd. sp.* 2. *p.* 786 ; *Michx. fl.* 2. *p.* 39 ; *Pursh, fl.* 1. *p.* 322 ; *Ell. sk.* 1. *p.* 525 ; *Torr. fl.* 1. *p.* 462 ; *Bigel. fl. Bost. p.* 258 ; *DC. prodr.* 1. *p.* 695 ; *Zucc. mon. Oxal.* (1831), *p.* 273 ; *Darlingt. fl. Cest. p.* 394 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 211.

Bulbs clothed with membranaceous 3-nerved scales, the margins of which are fringed with shaggy hairs. Root fibrous, proceeding from a roundish bulb formed of ovate-acuminate imbricated scales ; the outer ones 3-nerved, membranaceous, and fringed with long shaggy hairs ; the inner ones thick and filled with starch, minutely ciliate : both kinds probably the dilated persistent bases of former petioles (as in *Dicentra Cucullaria*). Petioles 2 – 4 inches long. Leaflets with an orange-colored spot at the base of the sinus on the under side, often, in exposed situations, of a purple color. Scapes 4 – 8 inches high, often several together ; pedicels 6 – 10 lines long. Flowers nodding. Sepals oblong, with a roundish 2-lobed gland at the base. Petals bright violet. Filaments sometimes smooth (in specimens from Mr. Oakes). Styles hairy, at first longer, but at length rather shorter, than the stamens : stigmas somewhat 2-lobed. Capsule few-seeded.

Common in woods, particularly in rocky places. April – June ; sometimes flowering again late in the season.

3. Oxalis stricta, *Linn.* *Yellow Wood-sorrel.*

Root fibrous, perennial ? stoloniferous ; stem at first erect, branching, at length often spreading or prostrate at the base ; leaflets obcordate ; peduncles 2 – 6-flowered, longer than the leaves ; petals (yellow) entire ; style the length of the inner stamens ; pedicels of the fruit erect. — *Jacq. Oxal. t.* 4, ex *DC. prodr.* 1. *p.* 692 ; *Michx. fl.* 2. *p.* 39 ; *Pursh, fl.* 1. *p.* 323 ; *Ell. sk.* 1. *p.* 526 ; *Torr. fl.* 1. *p.* 462 ; *Bigel. fl. Bost. p.* 258 ; *Zucc. Oxal. p.* 64 ; *Darlingt. fl. Cest. p.* 393 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 212. O. Dillenii, *Willd. sp.* 2. *p.* 799. O. recurva, *Ell. sk. l. c.*

Root producing tortuous, branching, underground stolons, which sometimes run to a considerable distance and throw up new plants. Stems 3 – 12 inches high, smooth or a little hairy. Leaves often partly pseudo-verticillate : leaflets broadly obcordate, slightly ciliate,

smooth: petioles 1 – 3 inches long, hairy. Peduncles nearly smooth. Umbel or cyme simple, 2 – 3-flowered; or 2-forked, each division with a 2 – 3-flowered cymule. Sepals oblong-lanceolate, rather acute. Petals obovate, twice the length of the calyx. Styles hairy: stigmas capitate. Capsule prismatic, somewhat hairy: cells 7 – 8-seeded. Seeds obovoid, compressed, with 6 – 8 longitudinal ridges, and strongly wrinkled transversely; enclosed in a thick rather fleshy epidermis, which splits on the back, and retracting elastically, throws the seed out of the capsule.

Common in fields, road-sides and cultivated grounds; flowering from May to September.—I am confident that this plant is usually perennial, or at least lives through two seasons. The specific name is very inappropriate. *O. corniculata* of Pursh and Michaux seems to be only the procumbent state of this species.

ORDER XXVII. BALSAMINACEÆ. *A. Richard.* THE BALSAM TRIBE.

Calyx of 5 deciduous, colored sepals; the 2 upper (anterior) ones commonly united into one, the lowest (posterior) one spurred or gibbous. Corolla hypogynous, 4-petalled; the petals united by pairs (so that they are, apparently, only 2). Stamens 5, hypogynous, more or less connected above. Ovary 5-celled, with the placentæ in the axis: stigmas 5, distinct, or more or less united. Capsule 5-celled, somewhat fleshy, bursting elastically by 5 valves, septifragal (rarely drupaceous). Seeds several in each cell, with a straight embryo, and destitute of albumen. Cotyledons large and flattish: radicle short.—Succulent, herbaceous (mostly annual) plants, with a watery juice. Leaves simple, without stipules *(Arn.)*.

1. IMPATIENS. *Linn.; Wight & Arn. prodr. fl. Ind. Or.* 1. *p.* 135; *Endl. gen.* 6060.

BALSAM. LADY'S SLIPPER.

[Named in allusion to the sudden bursting of the ripe seed vessels by the slightest touch.]

Sepals apparently only 4, from the union of the 2 upper ones. Petals 4, apparently only 2, from the union of the lateral ones on each side. Filaments 5, more or less united at the apex: anthers opening longitudinally or transversely. Cells of the ovary formed by membranous projections of the placentæ which occupy the axis of the ovary, and are connected

with its apex by 5 slender threads. Capsule often one-celled by the disappearance of the dissepiments. Seeds numerous or few (*Arn.*).

I have adopted Arnott's view of the structure of the flowers in this genus. Roeper, Endlicher and many other learned botanists consider the 2 upper (anterior) sepals as wanting; while the two united sepals of Arnott they refer to the corolla, and regard it as formed of a single (anterior) petal. Respecting the other parts, there is no essential difference of opinion.

§. *Leaves alternate: peduncles more than* 1*-flowered.* (*Smooth: stems transparent, tumid at the joints.*)

1. IMPATIENS PALLIDA, *Nutt.* *Touch-me-not. Snap-weed.*

Leaves oblong-ovate, on short petioles, coarsely and obtusely serrate, the teeth mucronate; peduncles 2 – 5-flowered; lower sepal obtusely conic, dilated, shorter than the petals, broader than long, with a very short recurved spur; flowers (pale yellow) sparingly dotted. — *Nutt. gen.* 1. *p.* 146; *Torr. fl.* 1. *p.* 248; *DC. prodr.* 1. *p.* 687; *Hook. fl. Bor. Am.* 1. *p.* 117; *Darlingt. fl. Cest. p.* 141; *Torr. & Gr. fl. N. Am.* 1. *p.* 208. I. nolitangere, *Michx. fl.* 2. *p.* 149 (var. *α.*); *Pursh, fl.* 1. *p.* 171; *Ell. sk.* 1. *p.* 303.

Stem 2 – 5 feet high, much branched. Leaves mostly rather obtuse at the base, 2 – 5 inches long; the petiole seldom half an inch in length; uppermost leaves nearly sessile. Peduncles 1 – 3 (and sometimes 5) inches long, rarely as many as 7-flowered: pedicels about an inch in length, with a small lanceolate bract near the middle. Flowers larger than in the following species. Lateral sepals roundish-ovate, somewhat herbaceous; the 2 superior ones united into one, petaloid, slightly emarginate; lower sepal distended into a large conical spurred sac, the spur about one-fourth the length of the sepal. Petals 2 on each side, unequal, united below; the lower one much larger and retuse, sparingly spotted with brownish red towards the base. Capsule about an inch long, somewhat clavate, 5-angled, few-seeded (6 – 8). Seeds narrowly oblong, smooth.

Moist shady places, particularly in rich soil along ravines. July – September. This species does not occur south of the Highlands, but in the western part of the State it is very common, and in many situations takes the place of the following.

2. IMPATIENS FULVA, *Nutt.* *Balsam-weed. Jewel-weed.*

Somewhat glaucous; leaves rhombic-ovate, on longish petioles, coarsely and obtusely serrate, the teeth mucronate; peduncles 2 – 4-flowered; lower sepal acutely conic, longer than the petals, with a rather long resupinate spur; flower (deep orange) with numerous spots. — *Nutt. gen.* 1. *p.* 146; *Torr. fl.* 1. *p.* 249; *Hook. fl. Bor.-Am.* 1. *p.* 117; *Darlingt. fl. Cest. p.* 141; *Torr. & Gr. fl. N. Am.* 1. *p.* 209. I. biflora, *Walt. fl. Car. p.* 219; *Pursh, fl.* 1. *p.* 171; *Ell. sk.* 1. *p.* 304. I. nolitangere, *Michx. fl.* 2. *p.* 149 (var. *β.*); *Bigel. fl. Bost. p.* 93. I. maculata, *Muhl. cat. p.* 26.

Stem 2 – 4 feet high, at length rather tawny. Leaves 1 – 3 inches long, mostly acute at the base, tawny underneath on the nerves and midrib: petioles an inch or more in length.

Peduncles 1 – 2 inches long, usually 2 – 3-flowered. Lower sepal longer than broad; the spur about twice as long as in *I. pallida*, marked with numerous reddish-brown spots. Capsule shorter and more ventricose than in the preceding species. Seeds 2 – 5, quadrangular, with prominent tumid angles.

Wet shady places; common every where. June – September.

This and the preceding species possess active medicinal properties; being emetic, cathartic and diaphoretic (See *Wood & Bache's U. S. Dispens.* 1088). *I. fulva* gives to the papers in which the dried plant is kept, an orange-colored stain, which sometimes strikes through several leaves, and of the exact form of the specimen. I have not observed the other species to produce the same effect.

Early in the season, and in very shady places, the flowers of this species are very minute, scarcely colored, and with only a rudimentary spur. They do not expand; but after impregnation, the united calyx and corolla, with the enclosed stamens, are separated from the base of the ovary by the growth of this organ, and remain for a time on its apex like a calyptra. The ovary then attains its usual size, and perfects its seeds.

ORDER XXVIII. LIMNANTHACEÆ. *R. Brown.* FALSE-MERMAID TRIBE.

Calyx of 3 – 5 persistent sepals, united at the base, valvate in æstivation. Petals 3 – 5, marcescent. Stamens twice as many as the petals, and united with them upon a thin somewhat perigynous disk. Ovaries 3 – 5, united by their styles, opposite the sepals: stigmas simple. Achenia somewhat fleshy; the cell filled by the solitary seed, which is destitute of albumen. Embryo with very large and thick cotyledons. Radicle very short, included. — Annual, smooth and tender herbs, somewhat acrid (like *Tropæolum*). Leaves alternate, pinnatifidly divided, without stipules. Flowers axillary, solitary.

1. FLŒRKEA. *Willd. in neue Berol. schrift.* 3. *p.* 148 (1801); *Lindl. in Hook. jour. bot.* 1. *t.* 1; *Endl. gen.* 6065. *FALSE MERMAID.*

[Named in honor of FLOERKE, a German botanist.]

Sepals 3 (rarely 4). Petals 3, shorter than the calyx. Stamens 6. Ovaries 2 – 3, tuberculate. Leaves pinnately divided; the divisions mostly entire.

1. FLŒRKEA PROSERPINACOIDES, *Willd.* (Plate XVII.) *False Mermaid.*

Willd. l. c.; Lindl. l. c.; Torr. & Gr. fl. N. Am. 1. *p.* 210. F. uliginosa, *Muhl. cat. p.* 36; *Raf. in Sill. jour.* 1. *p.* 373; *Torr. fl.* 1. *p.* 339; *Darlingt. fl. Cest. p.* 212. F. lacustris, *Pers. syn.* 1. *p.* 393. F. palustris, *Nutt. gen.* 1. *p.* 229. Nectris pinnata, *Pursh, fl.* 1. *p.* 239.

Plant somewhat succulent, of a pale green color. Stem flaccid, at length decumbent, 4 – 10 inches long, nearly simple or branching a little from the base. Leaves on slender petioles, with about 5 lanceolate or elliptical divisions; the lowermost ones often 2 – 3-lobed. Peduncles at first short, finally an inch or more in length, recurved. Flowers about 3 lines in diameter. Sepals ovate, acute, acuminate. Petals oblong, white, scarcely half as long as the sepals. Stamens shorter than the petals; the alternate filaments with a small process or gland at the base on the outside. Ovary usually of 2 obovoid carpels, seated on the flattened torus, to a slight prolongation of which the styles are united. The common style is thus placed between the ovaries, and is only connected with them at their bases. Stigmas 2 – 3, small, capitate. Achenia (sometimes solitary) large for the size of the flower, globose-ovoid, slightly tuberculate, somewhat coriaceous, blackish, closely investing the seed. Testa of the seed thin and membranaceous. Cotyledons elliptical, very thick and fleshy: radicle extremely short, and retracted between the cotyledons: plumule conspicuous.

Marshes and shady banks of rivers, in the western parts of the State. *Fl.* April – May.

This interesting plant was long in finding its place in the Natural System. Its affinities were finally determined by Dr. Brown. See *Lond. & Edin. phil. mag. July* 1833.

GROUP 8. *Ovary compound, with from 2 to several cells; or carpels several, and more or less united by their styles. Calyx free. Petals as many as the sepals, or rarely wanting. Stamens as many or twice as many as the sepals, inserted into the receptacle or base of the calyx. Flowers often diœcious or polygamous.*

ORDER XXIX. ANACARDIACEÆ. *R. Brown.* THE CASHEW TRIBE.

Flowers perfect, or by abortion often diclinous, regular. Sepals usually 5, rarely 3 – 4 – 7, distinct or more or less combined, usually persistent. Petals as many as the sepals, inserted into the disk which lines the base of the calyx: æstivation imbricated, or rarely valvate. Stamens as many as the petals and alternate with them, or twice as many or more, a portion sometimes sterile:

filaments distinct, sometimes alternately shorter, inserted with the petals. Ovary solitary (of 1 – 5 carpels, distinct or united, but all abortive except one), free, or rarely adhering to the calyx, 1-celled, or with one or two abortive cells of the suppressed carpels. Ovule solitary. Styles 3 or rarely 3 – 5, distinct or combined: stigmas usually 3. Fruit indehiscent, usually drupaceous, 1-seeded. Seed erect or suspended; the testa membranaceous, often confounded with the endocarp; albumen none. Embryo more or less curved: cotyledons thick and fleshy, sometimes foliaceous. — Trees or shrubs, with a resinous, gummy, caustic or milky juice. Leaves simple or compound, alternate, not dotted, without stipules. Flowers axillary or terminal, mostly panicled.

1. **RHUS.** *Linn.; Endl. gen.* 5905. *SUMACH.*

[From the Greek, *rhoos*, or Celtic, *rhudd*, red; from the color of the fruit.]

Sepals 5, united at the base, small, persistent. Petals 5, ovate, spreading, inserted under the margin of the orbicular disk. Stamens 5, equal, inserted into the disk. Styles 3, short, distinct or united: stigmas obtuse or capitate. Fruit a nearly dry drupe: nut bony. Seed suspended on a funiculus that rises from the base to the apex of the cell. Cotyledons foliaceous, incumbent on the radicle. — Shrubs or small trees. Leaves simple or unequally pinnate. Flowers often, by abortion, polygamous or diœcious. — All the following species give out, when broken, a more or less milky acrid juice.

§ 1. SUMAC, *DC.* *Flowers perfect, polygamous or diœcious: disk entire or lobed: drupe roundish, sometimes hairy: nut smooth or sulcate. Leaves unequally pinnate or trifoliolate: the petiole often winged: flowers panicled.*

1. **RHUS TYPHINA,** *Linn.* *Stag's-horn Sumach.*

Branches and petioles densely villous; leaflets in numerous pairs, whitish and more or less pubescent beneath, oblong-lanceolate, acuminate, acutely serrate; panicle terminal, thyrsoid; fruit densely clothed with crimson hairs. — *Duham. arb.* 2. *t.* 47; *Michx. fl.* 1. *p.* 182; *Ell. sk.* 1. *p.* 360; *Pursh, fl.* 1. *p.* 204; *Torr. fl.* 1. *p.* 322; *Bigel. fl. Bost. p.* 118; *DC. prodr.* 2. *p.* 67; *Darlingt. fl. Cest. p.* 205; *Torr. & Gr. fl. N. Am.* 1. *p.* 217. R. Canadense, *Mill. dict.* R. viridiflora, *Poir. dict.* 7. *p.* 504; *DC. l. c.* Datisca hirta, *Linn.* fide *Bennett in fl. Jav. rar.* 1. *p.* 80.

A large shrub 8 – 15 feet high, or sometimes a tree 20 feet high and 4 – 8 inches in diameter, with large irregular spreading branches. Leaflets in 5 – 15 pairs, 2 – 4 inches long; common petiole 1 – 2 feet or more in length. Flowers greenish yellow, often polygamous or diœcious. Sepals lanceolate, hairy. Petals oval-oblong, exceeding the calyx. Drupes compressed, velvety, of a bright crimson color, and of an acrid taste.

Rocky and gravelly hill-sides. *Fl.* June. *Fr.* September – October. Juice of the plant milky and resinous.

2. RHUS GLABRA, *Linn.* *Smooth Sumach.*

Leaves and branches smooth; leaflets in numerous pairs, lanceolate-oblong, acuminate, acutely serrate, whitish and glaucous underneath; panicles terminal, thyrsoid; fruit clothed with short velvety crimson hairs. — *Michx. fl.* 1. *p.* 182; *Pursh, fl.* 1. *p.* 204; *Torr. fl.* 1. *p.* 322; *Bigel. fl. Bost. p.* 118; *DC. prodr.* 2. *p.* 67; *Darlingt. fl. Cest. p.* 206; *Hook. fl. Bor.-Am.* 1. *p.* 126; *Torr. & Gr. fl. N. Am.* 1. *p.* 217. R. Caroliniana, *Mill. dict.* R. elegans, *Ait. Kew.* (*ed.* 1.) *p.* 162. R. Virginicum, &c. *Catesb. Car. app. t.* 4.

A shrub 5 – 15 feet high, with straggling smooth branches. Leaflets in 6 – 15 pairs, 2 – 3 inches long, sometimes only obscurely serrated; common petiole 12 – 18 inches long. Flowers often diœcious. Sepals lanceolate, acute. Petals greenish-yellow. Fruit of a fine crimson color; the pubescence consisting of short conical acute and shining hairs, containing a pleasant acid substance which Prof. W. B. Rogers has ascertained to be bimalate of lime. See *Amer. journ. of pharmacy*, (n. ser.) 1. *p.* 56.

Common in rocky barren places, and in old fields. *Fl.* Early in July – August. *Fr.* September – October. An infusion of the fruit is used as a pleasant cooling drink in fevers. The leaves of this and the preceding species abound in tannic acid, and are employed for tanning morocco. See *Wood & Bache's U. S. Dispens. p.* 556.

3. RHUS COPALLINA, *Linn.* *Mountain Sumach.*

Branches and petioles pubescent; leaflets in many pairs, oval-lanceolate or oblong, mostly acute or acuminate, shining above, pubescent beneath, unequal at the base; petiole winged; panicles terminal, thyrsoid, sessile; fruit red, hairy.— *Torr. & Gr. fl. N. Am.* 1. *p.* 217.

var. 1: leaflets entire, usually acuminate.—*Torr. & Gr. l. c.* R. Copallina, *Linn.; Walt. fl. Car. p.* 225; *Jacq. hort. Schoenb.* 3. *p.* 50. *t.* 341; *Michx. fl.* 1. *p.* 182; *Pursh, fl.* 1. *p.* 205; *Ell. sk.* 1. *p.* 362; *Torr. fl.* 1. *p.* 323; *Bigel. fl. Bost. p.* 119; *DC. prodr.* 2. *p.* 68; *Darlingt. fl. Cest. p.* 206.

var. 2: leaflets coarsely and unequally serrate.— *Torr. & Gr. l. c.*

A shrub 3 – 8 feet high, with numerous spreading branches. Leaflets mostly 4 – 6, but sometimes as many as 10 pairs, 1 – 2 inches long, in var. 1. entire or only a little waved on the margin: common petiole with the margin either slightly or broadly winged, contracted at the insertion of the leaflets. Panicles usually only terminal, but sometimes there are several small panicles in the axils of the uppermost leaves, larger and more open in the sterile than in the fertile plant. Flowers greenish-yellow. Sepals ovate. Petals oblong, 4 times as long as the sepals. Fruit compressed, thinly clothed with short slender hairs, strongly acid and somewhat bitter.

Rocky and sterile hills. August. Fruit ripe in September. The second variety I have found only in the Highlands around West-Point.

4. Rhus venenata, *DC.* *Poison Sumach. Poison Elder.*

Young branches and petioles smooth; leaflets 7 – 13 (membranaceous), obovate-oblong, entire, abruptly acuminate; panicles slender, in the axils of the uppermost leaves; drupes nearly globose, smooth, greenish-white.—*DC. prodr.* 2. *p.* 68; *Hook. fl. Bor.-Am.* 1. *p.* 127; *Darlingt. fl. Cest. p.* 207; *Torr. & Gr. fl. N. Am.* 1. *p.* 218. R. Vernix, *Linn.* (in part); *Michx. fl.* 1. *p.* 183; *Pursh, fl.* 1. *p.* 205; *Ell. sk.* 1. *p.* 362; *Bigel. med. bot.* 1. *p.* 96. *t.* 10, *and fl. Bost. p.* 119; *Torr. fl.* 1. *p.* 323.

A shrub 10 – 18 feet high, branching above; the young branches a little verrucose. Leaflets 1½ – 3 inches long, abruptly contracted at the base, smooth, or sometimes slightly pubescent underneath: common petiole often of a purplish color. Flowers greenish, in long loose panicles; pedicels pubescent. Fruit dry, about the size of a small pea, shining. Nut orbicular, ribbed. Cotyledons oval, rather thick and fleshy.

In swamps: common. *Fl.* June. *Fr.* September.

This is a violent poison to many persons; a contact with the plant, or sometimes its mere effluvium, causing a most painful eruption on the skin. The greater number of persons, however, who handle or approach the plant, are unaffected by it. One of the best applications in cases of poisoning by this and the following species, is a solution of sugar of lead, to be applied after the use of saline cathartics. This treatment has been very successful in the hands of Dr. Knieskern. The North American plant was formerly considered as identical with *R. Vernix* (now called *R. vernicifera*) of Japan, especially as it yields a varnish like that species; but it was at length found to be distinct.

5. Rhus Toxicodendron, *Linn.* *Poison Oak. Poison Vine. Mercury.*

Stem erect, decumbent, or climbing by radicles; leaves trifoliolate, somewhat pubescent underneath; leaflets (membranaceous) broadly oval or rhomboid, acuminate, entire or toothed, the lateral ones unequal at the base; panicles racemed, axillary, nearly sessile; fruit nearly globose, smooth.—*Michx. fl.* 1. *p.* 183; *Torr. fl.* 1. *p.* 323; *Torr. & Gr. fl. N. Am.* 1. *p.* 218. R. Toxicodendron *and* radicans, *Linn., Nutt, DC. prodr.* 2. *p.* 70.

var. 1: not climbing; leaflets entire, or variously and irregularly toothed or lobed.—*Torr. & Gr. l. c.* R. Toxicodendron, *Linn., Nutt. l. c. &c.* R. Toxicodendron, *var.* quercifolium, *Michx. l. c.; Pursh, fl.* 1. *p.* 205.

var. 2: climbing; leaflets entire, or sometimes slightly toothed.—*Torr. & Gr. l. c.* R. radicans, *Linn.; Bot. mag. t.* 1806; *Ell. sk.* 1. *p.* 363; *Bigel. med. bot.* 3. *p.* 19. *t.* 42, *and fl. Bost. p.* 120; *DC. l. c.; Darlingt. fl. Cest. p.* 207. R. Toxicodendron, *var.* radicans, *Torr. fl. l. c.*

The upright variety, a suffruticose plant 1 – 2 feet high; the other, climbing from 5 to 40 feet high, its woody trunk (sometimes 2 – 5 or 6 inches in diameter) furnished with innumerable dark-colored rootlets, by which it adheres to trees and other objects. Leaflets 2 – 5 inches long, pubescent when young; lateral ones sessile, terminal one on a partial

petiole an inch or more in length. Flowers yellowish-green, diœcious. Fruit the size of a small pea, greenish or pale brown. Nut broader than long, irregular, ribbed and tuberculate.

Woods, hedges, along fences, etc. *Fl.* June. *Fr.* September.

Poisonous like the preceding, but in a less degree. The dwarf upright form of this plant is not uncommon on the borders of woods, and on rocky hill-sides. It is certainly not a distinct species. In the more common or climbing state, its numerous stems sometimes become matted together, and finally strangle the tree to which they are attached. The plant thus assumes an arborescent appearance, the trunk and decayed branches of the tree being concealed by the stems and foliage of its destroyer.

§ 2. Lobadium, Raf. *Flowers diœcious or polygamous: disk glandular, deeply 5-lobed: drupe globose, villous: nut smooth, compressed: flowers in short ament-like spikes or panicles, preceding the leaves. Leaves trifoliolate.*

6. Rhus aromatica, *Ait.* *Sweet-scented Sumach.*

Leaves pubescent when young, at length often smooth; leaflets sessile, rhombic-ovate, unequally and coarsely toothed or serrated, the terminal one narrowed at the base.—*Ait. Kew.* (*ed.* 1.) 1. *p.* 367; *Turpin in ann. Mus.* 5. *p.* 445. *t.* 30; *Pursh, fl.* 1. *pp.* 184 *et* 205; *Ell. sk.* 1. *p.* 364; *Torr. fl.* 1. *p.* 324; *DC. prodr.* 2. *p.* 73; *Hook. fl. Bor.-Am.* 1. *p.* 130; *Torr. & Gr. fl. N. Am.* 1. *p.* 219. R. suaveolens, *Ait. l. c.* R. Canadense, *Marsh. arbust.?*; *DC. l. c.* Lobadium aromaticum, *Raf. in jour. phys.* 89. *p.* 98. Turpinia, *Daf. in Desv. jour. bot.* 2. *p.* 170.

A small shrub; the branches of a light brown color, and pubescent when young. Leaves 1½ – 2½ inches long, at length coriaceous. Inflorescence in the form of numerous small dense ament-like axillary racemes, which are formed the preceding summer. Scales reddish, with a hairy border. Flowers yellow. Fruit the size of a small pea, light red, more or less hispid, slightly compressed, acid.

Dry rocky hills and gravelly banks, north and west of Catskill. April – May. The specific name is inappropriate, as the flowers are not aromatic. To many persons they are unpleasant.

ORDER XXX. XANTHOXYLACEÆ. *Ad. Juss.* THE PRICKLY-ASH TRIBE.

Flowers by abortion diœcious or polygamous, regular. Calyx of 3 – 5 sepals. Petals as many as the sepals, or rarely none, convolutely imbricated in æstivation. Stamens as many as the sepals and alternate with them, or twice as many, arising from the base of the torus which bears the abortive carpels. Ovaries usually equal in number to the sepals, sometimes fewer, inserted on the convex or elevated torus, distinct or more or less united, each with 2 (rarely 4) ovules. Styles united into one when the ovaries are combined; usually distinct, or partly so, when the ovaries are not connate. Fruit sometimes baccate or membranaceous, sometimes composed of 1 – 5 drupes or 2-valved capsules; the rather fleshy sarcocarp partly separable from the endocarp. Seeds one or two in each cell or carpel, anatropous, pendulous, with a crustaceous testa, usually smooth and shining. Embryo lying within fleshy albumen: cotyledons oval, flat. — Trees or shrubs, aromatic, pungent and bitter. Leaves without stipules, simple or pinnate, usually marked with pellucid dots.

1. ZANTHOXYLUM. *L.; H. B. & K. nov, gen. & spec.* 6. *p.* 1; *Endl. gen.* 5972.

PRICKLY ASH.

[From the Greek, *xanthos*, yellow, and *xylon*, wood.]

Flowers polygamo-diœcious. Sepals 3 – 5, small. Petals longer than the sepals, or none. Stamens as many as the sepals and opposite them (or fewer); those of the pistillate flower rudimentary. Ovaries 1 – 5, raised on a globose or cylindrical torus, distinct or united at the base, with 2 collateral suspended ovules: styles distinct or united at the apex, sometimes very short. Carpels sessile or stipitate on the torus; crustaceous in fruit, 1 – 2-seeded. Seeds oval-globose when solitary, hemispherical when in pairs, black and shining. — Trees or shrubs, usually with strong prickles. Leaves usually pinnate, rarely simple or trifoliolate. Flowers small, greenish or whitish.

§ ZANTHOXYLUM proper, *Colden.* *Sepals* 5, *with a minute glandular beard at the apex: petals none: ovaries as many as the sepals and opposite them: styles at first somewhat united: stigmas clavate.*

1. ZANTHOXYLUM AMERICANUM, *Mill.* *Common Prickly Ash.*

Branches, and often the petioles, armed with short strong (stipular) prickles; leaves pinnate; leaflets ovate-oblong, nearly sessile, obscurely serrulate or entire, more or less pubescent; flowers in short axillary sessile umbels; carpels stipitate. — *Willd. beschr.* (1781), *p.* 116;

Torr. & Gr. fl. N. Am. 1. *p.* 214. Z. fraxineum, *Willd. Berol. baum.* (1796), *and sp.* 4. *p.* 757; *Pursh, fl.* 1. *p.* 210; *DC. prodr.* 1. *p.* 726; *Bigel. med. bot. t.* 59, *and fl. Bost. p.* 376; *Hook. fl. Bor.-Am.* 1. *p.* 118. Z. tricarpum, *Hook. l. c.* not of *Michx.* Z. ramiflorum, *Michx. fl.* 2. *p.* 235. Z. Clava-Herculis, var. *Linn.* Z. mite, *Willd. enum. p.* 1013; *DC. l. c.*

A shrub 4 – 6 feet high; the stronger prickles mostly in pairs at the base of the young branches. Leaves 4 – 5 pairs, with an odd one; common petiole often with a few short prickles: leaflets 1 – 2 inches long, downy when young, but at length only slightly pubescent beneath. Flowers expanding before the leaves, greenish. Barren and perfect flowers growing on the same plant. Sepals oblong, obtuse. Stamens much longer than the sepals. Ovaries 3 – 4 in the perfect flowers, mostly 5 in the pistillate ones, raised on a short stalk, ovoid-globose. Styles as long as the ovaries, scarcely connate, a little twisted. Capsules about the size of a peppercorn, greenish or with a red tinge, marked with impressed dots, half 2-valved. Seed solitary, suspended from near the summit of the cell.

Banks of rivers and lakes, and in rocky woods; northern and western parts of the State; not found below the Highlands. *Fl.* April and May. *Fr.* June. The bark is pungent, and is employed as a stimulant and diaphoretic in rheumatism. Its virtues are owing to a peculiar active principle, called *Zanthoxylin*, or *Xanthopicrite*. See *Bigelow's Med. Bot. l. c.*, and *Wood & Bache's U. S. Disp. p.* 697.

2. PTELEA. *Linn.; Endl. gen.* 5977. *SHRUBBY TREFOIL.*

[The Greek name of the Elm, derived from *ptao*, to fly; in allusion to the winged seed-vessels.]

Polygamo-diœcious. Sepals 3 – 6 (usually 4), small. Petals much longer than the sepals, spreading. Stamens (commonly 4) alternate with and longer than the petals: filaments subulate, thickened below, and hairy on the inside; in the fertile flowers, very short, and with sterile anthers. Ovary of 2 united carpels, placed on a convex torus: ovules 2 in each carpel, situated one above the other: style short or united, or none: stigmas 2. Fruit a samara, 2-celled, the margin expanded into a broad orbicular membranaceous and reticulated wing. Seeds oblong-ovoid, one in each cell. — Shrubs with pinnately 3 – 5-foliolate leaves, which are furnished with pellucid dots. Lateral leaflets inequilateral. Flowers whitish-green, in corymbose or paniculate cymes.

1. PTELEA TRIFOLIATA, *Linn.* *Swamp Dogwood. Stinking Ash.*

Leaflets sessile, ovate, mostly acuminate, the terminal one cuneiform and attenuate at the base; flowers commonly with 4 stamens; style short. — *Walt. fl. Car. p.* 88; "*Schmidt. arb.* 2. *t.* 76;" *Michx. fl.* 1. *p.* 99; *Ell. sk.* 1. *p.* 211; *Torr. fl.* 1. *p.* 189; *DC. prodr.* 2. *p.* 82; *Torr. & Gr. fl. N. Am.* 1. *p.* 215.

A shrub 6 – 8 feet high, pubescent when young. Petioles about 2 inches long. Leaflets 2 – 4 inches long, obscurely crenate-serrate, more or less pubescent beneath. Flowers lateral and terminal; the odor disagreeable. Samara three-fourths of an inch in diameter.

On the shore of Lake Erie, near Presque Isle (*Nuttall*), and probably also within the limits of New-York State. New-York to Carolina (*Pursh*). *Fl.* June. Tonic and aromatic. It is said to be good for worms, and to cure intermittents. The fruit has likewise been used as a substitute for hops.

GROUP 9. *Ovary compound, 2 – 3-lobed, 2 – 3-celled, free from the calyx. Petals usually one fewer than the sepals, or sometimes wanting. Stamens definite, distinct, inserted on or around a hypogynous disk. Seeds destitute of albumen.* — ***Mostly trees or shrubs.***

ORDER XXXI. ACERACEÆ. *Juss.* THE MAPLE TRIBE.

Calyx of 5 (rarely 6 – 9) more or less united sepals, colored: æstivation imbricated. Petals as many as the sepals and alternate with them, inserted round a hypogynous disk; sometimes none. Stamens usually 8 (sometimes 3 – 12), distinct, inserted on the disk. Ovary 2-lobed, composed of 2 united carpels, each containing 2 collateral ovules. Styles between the lobes of the ovary, more or less united, stigmatose on the inside. Fruit composed of 2 samaroid indehiscent carpels, each usually perfecting but a single seed, finally separating from the short filiform axis. Seeds with little or no albumen. Embryo curved or conduplicate, with wrinkled foliaceous cotyledons irregularly folded. — Trees or shrubs, with opposite palmately lobed or pinnately 3 – 5-foliolate leaves and no stipules. Flowers small, regular, by abortion often polygamous, in racemes, corymbs or fascicles; often preceding the leaves.

1. ACER. *Mœnch.; Endl. gen.* 5558. MAPLE.

[From the Latin, *acer*, sharp or hard; on account of the hardness of the wood, which was employed for making spears, etc.]

Flowers mostly polygamous. Petals colored like the sepals, often wanting. Stamens 7 – 10, rarely 5. — Leaves simple. The sap in many species contains sugar.

* *Flowers in racemes terminating the leafy branches, appearing after the leaves have expanded.*

1. ACER PENNSYLVANICUM, *Linn.* *Moose-wood. Striped Maple.*

Leaves pubescent underneath, finely and acutely doubly serrate, 3-lobed at the extremity; lobes with a slender serrate acumination; racemes simple, drooping; (flowers large;) petals obovate; fruit smooth, with large diverging wings.—*Michx. fl.* 2. *p.* 252; *Ell. sk.* 1. *p.* 451; *Torr. fl.* 1. *p.* 397; *Hook. fl. Bor.-Am.* 1. *p.* 111; *Torr. & Gr. fl. N. Am.* 1. *p.* 246. A. striatum, *Lam. dict.* 2. *p.* 381; *Michx. f. sylv.* 1. *t.* 45; *Pers. syn.* 1. *p.* 417; *DC. prodr.* 1. *p.* 593. A. Canadense, *Duham. arb.* 1. *t.* 12; *Marsh. arbust. p.* 4.

A shrub (or small tree), seldom exceeding 20 or 25 feet high; the bark smooth, greenish, and marked with dark stripes. Leaves 3 – 6 inches in diameter, more or less cordate at the base. Flowers larger than in any of the following species, yellowish-green. Calyx 5-parted; segments linear lanceolate. Petals one-third longer than the calyx. Styles united nearly to the summit: stigmas linear, recurved. Carpels about an inch long.

In woods, common in those of beech; frequent on mountains; not found south of the Highlands. Yields a sweet sap almost equal to that of the Sugar Maple, but in smaller quantities (*Dr. Knieskern*).

2. ACER SPICATUM, *Lam.* *Mountain Maple.*

Leaves pubescent underneath, somewhat cordate, coarsely serrate, 3- (or somewhat 5-) lobed, the lobes acuminate; racemes erect, slightly compound; petals linear-spatulate; fruit nearly smooth, with diverging wings. — *Lam. dict.* 2. *p.* 381; *DC. prodr.* 1. *p.* 593; *Torr. & Gr. fl. N. Am.* 1. *p.* 246. A. montanum, *Ait. Kew.* 3. *p.* 435; *Michx. fl.* 2. *p.* 253, *and f. sylv.* 1. *t.* 45; *Pursh, fl.* 1. *p.* 267; *Ell. sk.* 1. *p.* 452; *Torr. fl.* 1. *p.* 398; *Bigel. fl. Bost. p.* 379; *Hook. fl. Bor.-Am.* 1. *p.* 111. A. Pennsylvanicum, *Du Roi, harbk. t.* 2; *Wang. Amer. t.* 12. *f.* 30.

A shrub 6 – 15 feet high. Leaves 2 – 2½ inches wide; the acumination of the lobes mostly entire, somewhat rugose when old. Racemes about 2 inches long, often simple. Calyx hairy, the segments oblong. Petals very narrow, three times as long as the calyx, greenish. Stamens 6 – 8. Styles united to the summit: stigmas small, recurved. Fruit usually reddish or purple when ripe; the wings obovate, spreading to an obtuse angle.

Rocky hills and banks of small streams; usually growing in clumps. May – June.

** *Flowers in nearly sessile umbel-like corymbs, with very long filiform pedicels, appearing during the evolution of the leaves; the fertile corymbs terminating the branches; the infertile from lateral leafless buds.*

3. ACER SACCHARINUM, *Linn.* *Sugar Maple. Hard Maple.*

Leaves truncate and somewhat cordate at the base, whitish and minutely pubescent or smooth underneath, 3 – 5-lobed, with the sinuses obtuse; lobes with a slender acumination,

coarsely and sparingly sinuate-toothed; sepals bearded at the apex within; petals none; fruit smooth, on long nodding and partly hairy pedicels, the wings dilated above, somewhat erect or slightly diverging.— *Wang. Amer. p.* 36. *t.* 11. *f.* 26; *Michx. fl.* 2. *p.* 252; *Pursh, fl.* 1. *p.* 266; *Michx. sylv.* 1. *t.* 42; *Ell. sk.* 1. *p.* 450; *Torr. fl.* 1. *p.* 397; *Hook. fl. Bor.-Am.* 1. *p.* 113; *Darlingt. fl. Cest. p.* 245; *Torr. & Gr. fl. N. Am.* 1. *p.* 248.

var. *nigrum*: (*Black Sugar Maple.*) Leaves pale green beneath, the veins of the lower surface and petioles minutely villous-pubescent; wings of the fruit a little more diverging.— *Torr. & Gr. l. c.* A. nigrum, *Michx. f. sylv.* 1. *t.* 43; *Pursh, fl.* 1. *p.* 266; *Ell. sk.* 1. *p.* 450; *Torr. fl.* 1. *p.* 397.

A handsome tree, often from 50 – 80 feet high, and the trunk 2 – 3 feet in diameter; bark smooth and light-colored; the wood compact. Leaves 3 – 5 inches in diameter, deep green and smooth above; when young, almost villous underneath, but finally only slightly pubescent except on the veins: lobes diverging, usually 5-lobed, the 2 inferior lobes smaller and entire: petioles 2 – 3 inches long. Calyx campanulate, greenish-yellow, unequally crenate-toothed. Pedicels of the sterile flowers 1 – 3 inches long. Stamens 6 – 8. Wings of the fruit semi-obovate, greenish-yellow, about an inch long.

Fertile woods; common, particularly in the western part of the State. *Fl.* April – May. *Fr.* September.

The wood is valuable for fuel; and accidental varieties of it are the *Birdseye Maple* and *Curled Maple* of cabinet-makers. The sap, early in the season, affords the well known maple sugar. For the details of its manufacture, see *Michaux, Sylv. vol.* 1. *pp.* 228 – 234. The *Black Sugar Maple* is by some botanists regarded as a distinct species, but I have been unable to discover its peculiar characters. Neither the descriptions nor the figures of the younger Michaux exhibit any well-marked difference between it and the *Common Sugar Maple*, and yet they can generally be distinguished in their native woods.

*** *Pedicels in fascicles, proceeding from lateral leafless buds: flowers preceding the leaves.*

4. ACER DASYCARPUM, *Ehrh.* (Plate xviii.) *Silver-leaved Maple. White Maple.*

Leaves somewhat cordate or often truncate at the base (white underneath), deeply 5-lobed, with the sinuses rathes obtuse; lobes acute, unequally incised and toothed, entire towards the base; pedicels much shorter than the fruit; petals none; fruit woolly when young, nearly smooth when old, with very large upwardly dilated wings.— "*Ehrh. beitr.* 4. *p.* 24;" *Willd. sp.* 4. *p.* 985; *Nutt. gen.* 1. *p.* 252; *Ell. sk.* 1. *p.* 449; *Bigel. fl. Bost. p.* 379; *Torr. fl. p.* 396; *Hook. fl. Bor.-Am.* 1. *p.* 113; *Torr. & Gr. fl. N. Am.* 1. *p.* 248. A. eriocarpum, *Michx. fl.* 2. *p.* 253; *Desf. in ann. Mus.* 7. *t.* 25; *Michx. f. sylv.* 1. *t.* 48; *DC. prodr.* 1. *p.* 595; *Darlingt. fl. Cest. p.* 245.

A tree 30 – 50 feet high, and often 1 – 2 feet in diameter, with widely spreading branches; the wood white and soft; sap less sweet than that of the Sugar Maple. Leaves on long petioles, lobed beyond the middle, nearly smooth when old. Flowers greenish-yellow or

purplish, usually about 5 together: pedicels 2 – 3 lines long, in fruit about an inch. Stamens 3 – 6. Ovary woolly. Wings of the fruit 2 – 3 inches long, slightly falcate, somewhat diverging, one of them often abortive.

Banks of rivers. *Fl.* April. Fruit ripe in July and August. This tree is not uncommon in the valley of the Hudson, particularly in the neighborhood of Fishkill Landing. It forms a beautiful shade tree, the silvery white of the under surface of the leaves strongly contrasting with the bright green of the upper, especially when they are agitated by the winds.

5. ACER RUBRUM, *Linn.* *Red Maple. Swamp Maple.*

Leaves cordate, whitish and at length usually smooth underneath, 3 – 5-lobed, with the sinuses acute, the lobes acute or acuminate, doubly serrate or incisely toothed, the terminal one longest; pedicels of the fruit elongated; petals oblong or linear; fruit (and ovaries) smooth, the wings slightly falcate, at first converging, at length somewhat spreading.—*Michx. fl.* 2. *p.* 253; *Willd. sp.* 4. *p.* 984; *Michx. f. sylv.* 1. *t.* 41; *Ell. sk.* 1. *p.* 449; *Torr. fl.* 1. *p.* 395; *Bigel. fl. Bost. p.* 377; *DC. prodr.* 1. *p.* 595; *Darlingt. fl. Cest. p.* 244; *Torr. & Gr. fl. N. Am.* 1. *p.* 249. Acer, &c. *Catesb. Car.* 1. *t.* 62.

A tree 30 – 60 feet high, sometimes 2 feet or more in diameter; the wood close-grained, and sometimes of the variety called *Curled Maple;* the sap yielding a little sugar; young branches purplish red. Leaves 2 – 4 inches wide; the sinuses scarcely extending to the middle, very pubescent underneath when young, at length downy only on the nerves. Flowers on very short pedicels, red or sometimes yellowish. Calyx nearly as long as the petals, the segments oblong. Petals 3 – 6, ovate, obtuse. Stamens 5 – 6: anthers red. Disk lobed, glandular. Pedicels of the fruit 2 – 3 inches long: wings about an inch in length, usually reddish, sometimes yellowish.

In swamps and wet woods; rarely in dry situations. March – April. Fruit mature in September. The wood makes good fuel, but is inferior to that of the Sugar Maple.

ORDER XXXII. HIPPOCASTANACEÆ. *DC.* THE HORSE-CHESTNUT TRIBE.

Calyx of 5 united sepals. Petals usually 4, sometimes 5, irregular, unguiculate, hypogynous. Stamens 6 – 8 (mostly 7), distinct, unequal, inserted on the hypogynous disk: anthers oval. Ovary composed of 3 united carpels, 3-celled, with 2 collateral ovules in each cell: style filiform, acute. Fruit roundish, coriaceous, dehiscent, 3- (or, by abortion, 1 – 2-) celled, 2 – 3-valved, loculicidal. Seeds 1 – 3, very large, with a smooth shining coriaceous testa and a broad pale hilum: albumen none. Cotyledons very thick and fleshy, cohering: radicle conical, curved: plumule large, 2-leaved.—Trees or shrubs, with opposite digitate (rarely alternate and pinnate) leaves, without stipules. Flowers showy, in large panicles or racemes: pedicels articulated.

1. ÆSCULUS. *Linn.; Endl. gen.* 5641. HORSE CHESTNUT.

[An ancient Latin name, originally applied to a species of oak.]

Sepals united into a 5-toothed, campanulate or tubular calyx. Petals 4 – 5, more or less unequal.— Leaves palmately 5 – 7-foliolate: leaflets simply pinnately veined. Flowers in terminal thyrsoid racemes or panicles.

1. ÆSCULUS HIPPOCASTANUM, *Linn.* *Common Horse Chestnut.*

Fruit echinate; flowers with 5 petals and 7 stamens; leaflets 7, obovate-cuneate, acute, toothed.— *DC. prodr.* 1. *p.* 597.

A tree with smooth bark and a large round head. Leaflets irregularly and doubly toothed; veins on the underside clothed with a brown wool. Flowers large, white spotted with purple and yellow. Ovary stipitate. Fruit abounding in starch, bitter and somewhat poisonous.

About houses. A native of northern India. Flowers early in May.

GROUP 10. *Ovary compound, 2 – 5-celled. Calyx free from, or adherent to the base of the ovary. Petals and stamens equal in number to the lobes of the calyx, and inserted into its base or throat, or upon the disk that covers it. Seeds albuminous.— Trees or shrubs. Flowers regular.*

ORDER XXXIII. CELASTRACEÆ. *R. Brown.* THE SPINDLE-TREE TRIBE.

Calyx of 4 – 5 sepals, which are united at the base, and imbricated in æstivation. Petals as many as the sepals and alternate with them, plane, inserted by a broad base under the flat disk which surrounds the ovary; the æstivation imbricated. Stamens as many as the petals and alternate with them, inserted upon the margin or upper surface of the disk. Ovary free from the calyx, 2 – 5-celled (rarely by abortion 1-celled), with 1, 2 or several erect or ascending ovules in each cell. Styles and stigmas 2 – 5, distinct or united. Fruit a capsule or drupaceous, sometimes samara-like, with one or few seeds in each cell. Seeds often furnished with an arillus. Albumen usually fleshy, sometimes thin or wanting: radicle short: cotyledons thick or foliaceous.—Shrubs or rarely trees, with alternate or opposite leaves and small caducous stipules.

TRIBE I. *STAPHYLEÆ. DC.*

Seeds without an arillus, with a large truncate hilum and a bony testa. Cotyledons thick. Disk urceolate, 5-angled.— Leaves opposite, unequally pinnate or trifoliolate: leaflets serrate. Flowers in terminal racemes or panicles.

Bartling, Lindley and Endlicher consider this tribe as a distinct order.

1. STAPHYLEA. *Linn.; Endl. gen.* 5673. (Plate XIX.) *BLADDER-NUT.*

[Named from the Greek, *staphyle*, a bunch of grapes; from its mode of flowering.]

Flowers perfect. Sepals 5, oblong, erect, colored, persistent. Petals 5. Stamens 5. Ovary of 3 carpels, united at the axis. Styles distinct or slightly united. Fruit a membranaceous and inflated, 2 – 3-celled, 2 – 3-lobed capsule. Seeds globose, ascending, few, or by abortion solitary in each cell: albumen little or none.— Shrubs. Leaves 3 – 7-foliolate: leaflets involute in vernation. Flowers white; the racemes sometimes panicled.

1. STAPHYLEA TRIFOLIA, *Linn.* *American Bladder-nut.*

Leaves trifoliolate; leaflets ovate, acuminate, finely serrate, more or less pubescent when young; styles smooth, united above.— "*Schm. arb. t.* 81;" *Michx. fl.* 1. *p.* 184; *Ell. sk.* 1.

p. 369; *Torr. fl.* 1. *p.* 325; *Bigel. fl. Bost. p.* 121; *DC. prodr.* 2. *p.* 2; *Hook. fl. Bor.-Am.* 1. *p.* 119; *Darlingt. fl. Cest. p.* 209; *Torr. & Gr. fl. N. Am.* 1. *p.* 256.

A shrub 6 – 12 feet high, with straight, slender, smooth and dotted branches. Leaves on long pubescent petioles: leaflets 2 – 4 inches long, thin and membranaceous, the lateral ones nearly sessile, terminal one on a petiole more than an inch long. Common and partial stipules subulate, very caducous. Racemes or panicles pendulous, axillary and terminal. Petals obovate-spatulate, ciliate at the base. Stamens slightly exserted: filaments hairy below: anthers cordate. Capsule about the size of a pigeon's egg, sometimes 4-lobed, distinct at the summit, acuminate, and tipped with the persistent styles, opening by the inner suture. Seeds 1 – 3, obovoid, smooth and polished.

Rocky places, particularly along rivers. May. Fruit mature in September.

TRIBE II. *EUONYMEÆ. DC.*

Seeds furnished with an arillus. Cotyledons mostly foliaceous. — Leaves simple, entire or serrate, with minute deciduous stipules. Flowers in terminal racemes or axillary cymes.

2. CELASTRUS. *Linn.* (partly); *Kunth, syn.* 4. *p.* 185; *Endl. gen.* 5679.

SHRUBBY BITTERSWEET.

[An ancient Greek name of a plant, supposed to be allied to this genus.]

Flowers, by abortion, somewhat dioecious or polygamous. Petals 5, united below into a very short turbinate calyx-tube. Petals 5, ovate or oblong, sessile. Stamens inserted on the margin of the orbicular fleshy disk. Ovary 3-celled, seated on the disk: ovules 2 in each cell, erect. Styles short and thick: stigma 3-lobed. Capsule globose, coriaceous, 2 – 3-celled, the dissepiments sometimes incomplete or loculicidal. Seeds 1 – 2 in each cell, enclosed in a pulpy arillus: testa membranaceous. Embryo enclosed in a rather thin albumen, nearly the length of the seed: cotyledons broad and foliaceous: radicle short. — Climbing, unarmed shrubs. Leaves alternate, thin. Stipules minute. Racemes terminal, somewhat compound, the lower part often leafy: pedicels articulated. Flowers small, pale yellowish-green.

1. CELASTRUS SCANDENS, *Linn.* *Bittersweet. Wax-work.*

Leaves oval or obovate, acuminate, with glandular incurved serratures, smooth; petals obovate-oblong. — *Willd. sp.* 1. *p.* 1125 (excl. syn.); "*Schk. handb.* 1. *t.* 47;" *Michx. fl.* 1. *p.* 154; *Gært. fr. t.* 95; *Pursh, fl.* 1. *p.* 167; *Bigel. fl. Bost. p.* 92; *Torr. fl.* 1. *p.* 262; *DC. prodr.* 2. *p.* 6; *Darlingt. fl. Cest. p.* 148; *Torr. & Gr. fl. N. Am.* 1. *p.* 257.

Stem twining around shrubs and small trees, or along stone fences, 10 – 20 feet long. Leaves 2 – 3 inches long, rather variable in form, but usually more or less obovate, acute at the base. Stipules very minute, setaceously 2 – 3-parted, deciduous. Racemes, or rather

panicles, 1 – 2 inches long. Flowers only 2 – 3 lines in diameter. Segments of the calyx oblong. Petals ovate-oblong, obtuse. Capsule about one-third of an inch in diameter, of an orange color when mature; the valves widely opening in dehiscence, each marked with a central ridge or imperfect dissepiment on the inside. Seeds elliptical-oblong, reddish brown, coated with a thick bright orange or scarlet arillus. Albumen oily.

Borders of woods, banks of rivers, and along fences; common. *Fl.* Early in June. *Fr.* September.— The plant is said to be narcotic and stimulating. It is sometimes employed as a domestic medicine in the Western States.

3. EUONYMUS. *Tourn. inst. t.* 388; *Endl. gen.* 5676. *SPINDLE-TREE.*

["Named from *Euonyme*, mother to the Furies; in allusion to the injurious effects produced by the fruit of this plant." HOOKER.]

Sepals 4 – 5, united at the base, spreading. Petals 4 – 5. Stamens inserted on the upper surface of the broad flat fleshy disk: filaments short: anthers with a broad connectivum at the back; the cells opening transversely or longitudinally. Ovary half immersed in the disk; the cells as many as the petals, each with 2 – 3 ovules. Style short and thick: stigma obtuse or lobed. Capsule 4 – 5-lobed, 4 – 5-celled, loculicidal. Seeds 1 – 2 in each cell, usually enclosed in a fleshy or pulpy, red or purple arillus. Embryo with broad foliaceous cotyledons: albumen fleshy and oily.—Shrubs erect, trailing, or climbing by rootlets. Leaves opposite, serrate. Stipules mostly wanting. Peduncles axillary, cymosely few- or one-flowered.

1. EUONYMUS ATROPURPUREUS, *Jacq.* *Burning-bush. Indian Arrow.*

Branches smooth; leaves oval or elliptical-oblong, acuminate, mostly acute at the base, finely serrate, on distinct petioles, puberulent underneath; peduncles divaricately cymose, several-flowered; parts of the flower usually in fours; petals roundish-obovate; capsules smooth, deeply lobed.—"*Jacq. hort. Vind.* 2. *t.* 120;" *Willd. sp.* 1. *p.* 1132; *Michx. fl.* 1. *p.* 155; *Ell. sk.* 1. *p.* 293; *DC. prodr.* 2. *p.* 4; *Torr. fl.* 1. *p.* 261; *Darlingt. fl. Cest. p.* 149; *Torr. & Gr.* 1. *p.* 258.

A shrub 6 – 10 – 12 feet high; the branches somewhat quadrangular and straight. Leaves 3 – 4 inches long, thin, conspicuously acuminate; the petiole half an inch or more in length. Peduncles 1 – 2 inches long, 5 – 7-flowered; the flowers of a dark purple color. Capsule crimson when mature. Seeds elliptical, whitish, nearly enclosed in the bright red, succulent arillus.

Moist woods and along rivers, in the western part of the State. *Fl.* June. *Fr.* October.

From this shrub is prepared the "*Wa-a-hoo,*" a quack medicine of some reputation (*Dr. Knieskern*).

2. EUONYMUS AMERICANUS, *Linn.* (Plate XX.) *Strawberry-tree.*

Branches smooth, 4-sided; leaves varying from elliptical-lanceolate to oval-obovate, slightly crenate-serrate, smooth; petioles very short; peduncles 1 – 3-flowered; parts of the flower mostly in fives; petals roundish-obovate; capsules depressed-globose, verrucose. — *Willd. sp.* 1. *p.* 1132; *Michx. fl.* 1. *p.* 155; *Duham. arb.* 3. *t.* 9; *Ell. sk.* 1. *p.* 292; *Torr. fl.* 1. *p.* 261; *DC. prodr.* 2. *p.* 4; *Hook. fl. Bor.-Am.* 1. *p.* 119; *Darlingt. fl. Cest. p.* 150; *Torr. & Gr. fl. N. Am.* 1. *p.* 256.

var. 1: erect, oval, oblong, or elliptical-lanceolate, sometimes a little falcate. var. α. & β. *Torr. & Gr. l. c.*

var. 2: trailing and often rooting; leaves ovate-lanceolate. *Torr. & Gr. l. c.* E. Americanus, *var.* sarmentosus, *Nutt. gen.* 1. *p.* 154.

var. 3: trailing and rooting, with short erect branches; leaves obovate or oval-obovate, obtuse or slightly acuminate, acute at the base. *Torr. & Gr. l. c.* E. obovatus, *Nutt. l. c.*

The common or upright variety is a shrub from 2 to 5 feet high; the prostrate form is 2 – 3 feet long, with erect flowering branches about a span high. Leaves 1 – 3 inches long, somewhat coriaceous: petioles 1 – 2 lines long. Flowers about one-third of an inch in diameter, flat when expanded. Segments of the calyx very short, or nearly obsolete. Petals greenish-yellow with a tinge of purple; the claw short. Capsule 6 – 7 lines in diameter, densely covered with acute warts, of a bright crimson when mature; the dissepiments and arillus of a scarlet color. Seeds whitish, ovoid, smaller than in the preceding species, 1 – 3 in each cell.

Moist woods, and in swamps; western part of the State: rather rare. *Fl.* June. *Fr.* October.

ORDER XXXIV. RHAMNACEÆ. *Juss.* THE BUCKTHORN TRIBE.

Calyx of 4 – 5 sepals united at the base, valvate in æstivation. Petals 4 – 5, cucullate or convolute, inserted on the throat of the calyx, sometimes wanting. Stamens as many as the petals, and opposite them! Ovary usually cohering with the tube of the calyx, more or less immersed in the fleshy disk, composed of 2 – 4 united carpels, 2 – 4-celled, with a single erect ovule in each cell: styles more or less united: stigmas simple, usually distinct. Fruit a capsule, berry or drupe, commonly more or less cohering with the calyx. Seeds erect, without an arillus: albumen fleshy, or rarely none. Embryo nearly as large

as the seed: radicle short: cotyledons large, flat. — Shrubs or trees, often thorny. Leaves mostly alternate, simple, usually with minute stipules. Flowers small, sometimes by abortion diœcious or polygamous: inflorescence various.

1. RHAMNUS. *Linn.; Brongn. in ann. sci. nat.* 10. *p.* 360; *Endl. gen.* 5722. BUCKTHORN.

[From the Greek, *ramnus*, a branch; in allusion to its numerous branches.]

Calyx urceolate, 4 – 5-cleft. Petals 4 – 5, emarginate or 2-lobed, often more or less convolute, sometimes very minute or wanting. Torus thin, lining the tube of the calyx. Ovary free from the calyx, not immersed in the torus, 2 – 4-celled: styles 2 – 4, distinct or more or less connected. Fruit drupaceous, roundish, containing 2 – 4 cartilaginous nuts. — Shrubs or small trees. Leaves alternate or rarely opposite, on short petioles. Flowers minute, usually in short axillary clusters.

1. RHAMNUS CATHARTICUS, *Linn.* *Common Buckthorn.*

Erect: branches thorny at the summit: leaves ovate, denticulate-serrate; flowers fascicled, polygamo-diœcious, mostly tetrandrous; fruit nearly spherical, 4-seeded.—*Eng. bot. t.* 1629; *Torr. fl.* 1. *p.* 263; *Torr. & Gr. fl. N. Am.* 1. *p.* 260.

A large spreading shrub, with grayish bark. Leaves spreading and somewhat opposite, 1 – 2 inches long, with a short abrupt acumination, smooth, with 5 – 7 strong nearly longitudinal veins. Pedicels 3 – 4 lines long. Fertile flowers with lanceolate sepals, linear-oblong petals and abortive stamens. Styles free at the summit, recurved: stigmas somewhat clavate. Sterile flowers with ovate sepals and petals, and an abortive ovary. Fruit black, nauseous and cathartic.

In the Highlands of New-York, naturalized in many retired situations. *Fl.* May. — The berries were formerly employed as a cathartic, but they are drastic. The syrup of buckthorn is still a common article of the materia medica, but is chiefly used for uniting other medicines. The pigment called *sap green* is prepared from the juice of the berries mixed with alum.

2. RHAMNUS ALNIFOLIUS, *l'Herit.* *Alder-leaved Buckthorn.*

Erect, without spines; leaves oval, acuminate, serrate, somewhat pubescent on the veins underneath; flowers polygamo-diœcious, solitary or aggregated, pentandrous (or rarely tetrandrous), apetalous; styles 3, very short, at first united nearly to the summit; disk somewhat fleshy; fruit roundish-turbinate. — "*l'Herit. sert. p.* 5;" *Torr. fl.* 1. *p.* 263; *DC. prodr.* 2. *p.* 25; *Hook. fl. Bor.-Am.* 1. *p.* 122. *t.* 42; *Torr. & Gr. fl. N. Am.* 1. *p.* 262. R. franguloides, *Michx. fl.* 1. *p.* 153; *Pursh, fl.* 1. *p.* 166?

A shrub 2 – 4 feet high, branching; the bark of the younger branches grayish. Leaves 1 – 4 inches long, acute at the base, nearly smooth when full grown. Flowers produced on the lower part of the young branches. Pedicels 1 – 2 lines long. Sepals ovate-lanceolate, spreading. Styles in the sterile flowers short, united; in the fertile flowers, at length free above, and recurved. Fruit black, the size of a small pea, obtusely triangular; the pedicel 3 – 4 lines long. Seeds plano-convex, without a furrow.

Sphagnous swamps in the northern and western parts of the State. *Fl.* June. *Fr.* August.

2. CEANOTHUS. *Linn.* (in part); *Brongn. l. c.; Endl. gen.* 5726.

[An ancient Greek name, applied to a plant supposed to resemble this genus.]

Calyx 5-cleft; the upper portion at length separating by a transverse line; the tube adhering to the base of the ovary. Petals 5, longer than the calyx, saccate or cucullate and arched, compressed, on long slender claws. Stamens exserted: anthers ovate, 2-celled. Disk annular, somewhat 5-angled, fleshy on the margin, surrounding the ovary. Styles 3, united to the middle, diverging above. Fruit dry and coriaceous, usually 3-celled, obtusely triangular and somewhat tricoccous, surrounded below by the persistent tube of the calyx; the cells at length opening by the inner suture. Seeds oval, without a lateral furrow.— Shrubs or suffrutescent plants, not thorny, with large reddish astringent roots. Leaves alternate, mostly ovate or elliptical, serrate or entire. Flowers (perfect) white, blue or yellowish, in umbel-like fascicles which are aggregated at the extremity of the branches in small dense thyrsoid panicles or corymbs.

1. CEANOTHUS AMERICANUS, *Linn.* *New-Jersey Tea. Red-root.*

Leaves ovate or oblong-ovate, 3-ribbed from the base, acuminate, serrate, nearly smooth above, more or less velvety-pubescent underneath; peduncles axillary, elongated; thyrsus oblong, leafless.— *Michx. fl.* 1. *p.* 154; *Bot. mag. t.* 1479; *Pursh, fl.* 1. *p.* 167; *Ell. sk.* 1. *p.* 290; *Torr. fl.* 1. *p.* 260; *Bigel. fl. Bost. p.* 91; *DC. prodr.* 2. *p.* 31; *Hook. fl. Bor.-Am.* 1. *p.* 124; *Darlingt. fl. Cest. p.* 148; *Torr. & Gr. fl. N. Am.* 1. 264.

Root dark red. Stem shrubby or suffruticose, 2 – 3 feet high, with numerous terete pubescent branches. Leaves 2 – 3 inches long, the base acute or sometimes slightly cordate, the serratures tipped with black glands; the petiole 3 – 4 lines long. Peduncles often longer than the leaves, naked, or with 1 – 2 small leaves at the base of the thyrsus. Pedicels, calyx and corolla white. Disk with a 10-toothed border. Seeds, when fully ripe, convex on both sides, of a brownish or ash-color, smooth and shining: testa coriaceous.

Dry woods and copses; common. *Fl.* Latter part of June. *Fr.* September.

The leaves of this plant, when properly dried, form a pretty good substitute for tea, and were used for that purpose during the American Revolution.

2. CEANOTHUS OVALIS, *Bigelow.* (Plate XX.) *Narrow-leaved Ceanothus.*

Leaves narrowly oblong or elliptical-lanceolate, 3-nerved from the base, serrulate, nearly smooth; thyrsus umbel-like, the pedicels elongated and closely approximated. — *Bigel. fl. Bost. p.* 92; *Gray in ann. lyc. N. York,* 3. *p.* 224; *Torr. & Gr. fl. N. Am.* 1. *p.* 265. C. intermedius, *Hook. fl. Bor.-Am.* 1. *p.* 124, (not of *Pursh?*)

A shrub 2 – 3 feet high. Leaves 1 – 2½ inches long, varying from oval to linear-oblong, acute at each end, or sometimes obtuse at the summit; pubescent when young, but at length nearly or quite smooth, except a slight pubescence on the veins underneath; the serratures tipped with black glands. Peduncles 1 – 2 inches long, naked, or with one or two small leaves just below the flowers. Pedicels 8 – 10 lines long.

Barren rocky places; western shore of Lake Champlain, and in Jefferson county. May – June. — Easily distinguished from the preceding, by its narrow leaves, and short, almost hemispherical thyrsus.

ORDER XXXV. VITACEÆ. *Juss.* THE VINE TRIBE.

AMPELIDEÆ, *Kunth, Endl. &c.*

Calyx minute, entire or 4 – 5-toothed. Petals 4 – 5, inserted on the outside of an annular or urceolate disk, distinct or cohering by their tips, caducous, valvate in æstivation. Stamens as many as the petals and opposite them!, inserted on the surface of the disk. Ovary 2-celled, with 2 erect anatropous ovules in each cell. Style short or none: stigma simple. Fruit a globose, mostly pulpy berry, with 1 or 2 seeds in each cell, often by abortion 1-celled, 1 – 2-seeded. Seeds erect, with a bony or coriaceous testa. Embryo much shorter than the horny or fleshy albumen: cotyledons lanceolate or subulate. — Shrubby plants, climbing by tendrils, with simple or compound leaves. Flowers small, greenish, often polygamous, in racemose or thyrsoid panicles.

1. VITIS. *Linn.; Gært. fr. t.* 106; *W. & Arn. prodr. fl. Ind. Or.* 1. *p.* 124; *Torr. & Gr. fl. N. Am.* 1. *p.* 242. *VINE.*

[An ancient Latin name of the vine.]

Calyx slightly 4 – 5-toothed. Petals 4 – 5, distinct and spreading, or united at the apex but distinct at the base, and falling off like a calyptra. Disk elevated in the centre, and sur-

rounding the lower part of the ovary, with which it is incorporated; girt at the base by a short ring or expansion of the disk, upon which the stamens are inserted. Ovary ovate, partly immersed in the disk, 2- (sometimes 3-) celled. Berry 1 – 2- (rarely 3-) celled, 1 – 4-seeded. Peduncles usually changed, in whole or in part, into tendrils.—*Arnott.*

§. VITIS proper. *Petals 5, mostly united at the apex: stamens 5: style short, conical: stigma depressed and somewhat peltate. Peduncles sometimes partly changed into tendrils: flowers, in the N. American species, polygamous; the panicle or thyrsus formed of numerous small umbels.*

1. VITIS LABRUSCA, *Linn.* *Fox Grape.*

Leaves broadly cordate, somewhat lobed and angular, repandly toothed, densely grayish-tomentose or tawny underneath, the veins somewhat ferruginous; fertile panicles oblong, compact, rather few-flowered; berries large. — *Michx. fl.* 2. *p.* 230; *Pursh, fl.* 1. *p.* 169; *Ell. sk.* 2. *p.* 689; *Torr. fl.* 1. *p.* 264; *Bigel. fl. Bost. p.* 93; *DC. prodr.* 1. *p.* 634; *Darlingt. fl. Cest. p.* 150; *Hook. fl. Bor.-Am.* 1. *p.* 115; *Torr. & Gr. fl. N. Am.* 1. *p.* 244.

Stem very long, straggling over bushes and shrubs, or climbing the highest trees, sometimes 6 – 8 inches in diameter near the base; the younger branches clothed with a ferruginous pubescence. Leaves usually 4 – 6 inches in diameter, sometimes much larger, often distinctly 3-lobed; upper surface dark green, dull; teeth short, mucronate. Panicles about 2½ inches long; the fertile ones less compound than the sterile. Fruit nearly three-fourths of an inch in diameter, globose, usually very dark purple when ripe, but sometimes amber-color or greenish white, of a strong musky odor and somewhat rancid taste, filled with a tough pulp.

Common in woods and swamps. *Fl.* Early in June. *Fr.* September.

Several varieties of this grape have long been cultivated, but they all have more or less of a tough pulp and strong flavor: the most esteemed are the *Isabella, Schuylkill* or *Alexander's*, the *Catawba* and *Bland's Grape.*

2. VITIS ÆSTIVALIS, *Michx.* *Summer Grape.*

Leaves broadly cordate, often 3 – 5-lobed, or sinuately palmate, coarsely and unequally toothed, sparingly ferruginous-tomentose underneath, at length somewhat smooth; fertile panicles long; berries small.—*Michx. fl.* 2. *p.* 230; *Pursh, fl.* 1. *p.* 169; *Ell. sk.* 2. *p.* 688; *Torr. fl.* 1. *p.* 265; *DC. prodr.* 1. *p.* 164; *Darlingt. fl. Cest. p.* 151; *Torr. & Gr. fl. N. Am.* 1. *p.* 244. V. intermedia, *Muhl. cat. p.* 26.

Stem very long, climbing the highest trees. Leaves 4 – 7 inches wide, often deeply lobed, with the sinuses rounded; the upper surface bright green, not shining; under surface clothed with a loose reddish cobweb-like pubescence, particularly when young; when old, sparsely hairy, with much less of the cobweb-like down. Panicles larger than in the preceding species, and more compound. Berries about one-fourth of an inch in diameter, globose, deep blue or almost black, of a pleasant flavor.

Woods and river banks; common. *Fl.* Early in June. *Fr.* October. "It sometimes attains a great height; the upper branches sustaining it by clinging to the limbs of tall trees, and gradually ascending, whilst the older branches die and drop off, leaving the stem naked and suspended, somewhat resembling a topgallant halyard *belayed* at the root." *Darlington.*

3. VITIS CORDIFOLIA, *Michx.* *Winter Grape. Frost Grape.*

Leaves cordate, acuminate, somewhat equally and rather coarsely toothed, thin and somewhat membranaceous, smooth above, the under surface (when young) slightly pubescent on the veins, and a little shining, finally smooth; panicles loose; berries small. — *Michx. fl.* 2. *p.* 231; *Pursh, fl.* 1. *p.* 169; *DC. prodr.* 1. *p.* 364; *Torr. & Gr. fl. N. Am.* 1. *p.* 244. V. vulpina, *Muhl. cat. p.* 26; *Torr. fl.* 1. *p.* 264, (not of *Willd.*); *Hook. fl. Bor.-Am.* 1. *p.* 115.

Stem 10 – 20 feet long, climbing over shrubs and small trees. Leaves 3 – 5 inches in diameter, sometimes slightly 3-lobed; teeth broad and mucronate; petiole longer in proportion to the lamina than in the preceding species. Berries numerous, about one-fourth of an inch in diameter, nearly black when mature, very acerb; but after having been frozen, rather pleasant.

Thickets and banks of rivers: not uncommon in the vicinity of New-York. *Fl.* June. *Fr.* November.

4. VITIS RIPARIA, *Michx.* *Winter Grape.*

Leaves unequally and incisely toothed, more or less 3-lobed, thin and somewhat membranaceous, the petioles, veins and margins pubescent; raceme loose; fruit small.— *Michx. fl.* 2. *p.* 231; *Pursh, fl.* 1. *p.* 169; *DC. prodr.* 1. *p.* 364; *Torr. & Gr. fl. N. Am.* 1. *p.* 245. V. cordifolia, *Darlingt. fl. Cest. p.* 151? excl. syn.

Stem long. Leaves 3 – 5 inches in diameter, deeply toothed and more or less incised, sometimes sinuately palmate, the segments and lobes acuminate, dull above, slightly shining underneath. Flowers very sweet-scented. Berries about a quarter of an inch in diameter, dark purple or amber-color when mature.

Western part of the State? I think I have specimens from one of the western counties, but neglected to label the locality. This species is most readily distinguished from the preceding, with which it is often confounded, by its incisely serrate leaves.

2. AMPELOPSIS. *Michx. fl.* 1. *p.* 159; *Torr. & Gr. fl. N. Am.* 1. *p.* 245.

VIRGINIAN CREEPER.

[Named from the Greek, *ampelos*, vine, and *opsis*, resemblance.]

Calyx entire. Petals 5, distinct, spreading. Disk without a ring. Ovary conical, not immersed in the disk: style very short, conical: stigma small, simple. Berry rather dry.—A shrubby vine. Leaves digitately 5-foliolate. Flowers perfect, in spreading corymbose panicles.

1. AMPELOPSIS QUINQUEFOLIA, *Michx.* *Virginian Creeper. American Ivy.*

Michx. fl. 1. *p.* 159; *Hook. fl. Bor.-Am.* 1. *p.* 114; *Torr. & Gr. fl. N. Am.* 1. *p.* 245. A. hederacea, *DC. prodr.* 1. *p.* 633; *Beck, bot. p.* 65; *Darlingt. fl. Cest. p.* 153. Vitis quinquefolia, *Lam.* V. hederacea, *Willd. sp.* 1. *p.* 1182. Hedera quinquefolia, *Linn.* Cissus hederacea, *Pers. syn.* 1. *p.* 143; *Pursh, fl.* 1. *p.* 170; *Ell. sk.* 1. *p.* 305; *Torr. fl.* 1. *p.* 266.

Stem climbing trees and other objects; spreading extensively, and adhering by little disks or expansions of the extremities of the tendrils. Leaves smooth: leaflets oblong, acuminate, petiolulate, coarsely serrate: petioles as long or longer than the leaflets. Panicle compound, with 2 or 3 principal divisions; the pedicels somewhat umbellate. Flowers greenish-yellow, only a few opening at a time. Calyx distinct, spreading, the margin very entire or slightly crenate. Petals at first cohering, at length distinct and reflexed. Anthers large, oblong. Ovary 5-angled, and somewhat lobed at the base. Berry about the size of a small pea, of a dark blue color when ripe; the peduncles and pedicels bright crimson. Seeds large for the size of the berry, commonly 2 in each cell, but sometimes only one.

Borders of woods, copses, etc.; common. *Fl.* July. *Fr.* October. A favorite vine about houses, being of rapid growth, and presenting a beautiful and striking appearance in the autumn from its crimson foliage. It is difficult to dry specimens of the plant, without their falling to pieces at the articulations.

GROUP 11. *Character same as of the following order.*

ORDER XXXVI. POLYGALACEÆ. *Juss.* THE MILKWORT TRIBE.

Calyx of 5 distinct irregular sepals; three of them exterior and smaller, of which one is superior (next the axis of inflorescence) and two inferior; the two lateral or inner ones *(wings)* larger, and usually petaloid: æstivation imbricated. Petals usually 3, hypogynous, irregular, deciduous; the anterior *(keel)* larger than the rest, usually crested or lobed. Stamens 6 – 8, hypogynous: filaments combined into a tube, which is split on the upper side, and more or less united below with the claws of the petals: anthers innate, mostly 1-celled, opening by a terminal pore. Ovary formed of 2 united carpels, 2-celled, with a single pendulous anatropous ovule (rarely 2 ovules) in each cell: style curved and often hooded. Fruit (usually a capsule) compressed, loculicidal, sometimes indehiscent. Seeds with a crustaceous testa, usually with an arilliform caruncle. Embryo straight, in copious fleshy albumen. — Herbaceous (all the North American species) or shrubby plants, with simple entire leaves destitute of stipules; the roots bitter, and often milky. Flowers mostly in racemes or spikes; the pedicels with 1 – 3 bracts.

1. POLYGALA. *Tourn.; A. St. Hil. & Moq.-Tand. in mem. mus.* 17. *p.* 313; *Endl. gen.* 5647. *MILK-WORT.*

[Named from the Greek, *poly*, much, and *gala*, milk; from its supposed power of increasing the secretion of milk.]

Sepals persistent; the wings large and petaloid. Petals 3, their claws cohering with the stamineal tube; the lowest one keel-shaped. Ovary 2-celled, with a single ovule in each cell. Capsule compressed contrary to the very narrow dissepiment, elliptical, obovate or cordate. Seeds mostly with a 2-lobed, arillate caruncle.—Racemes often spiked or capitate.

§ 1. *Spikes thick, capitate or oblong, terminal: keel crested (the crest often minute): style mostly cucullate, and dilated in the middle: filaments united nearly to the summit: caruncle with a 2-lobed appendage.—Annual or biennial.*

1. POLYGALA SANGUINEA, *Linn.* *Purple Milk-wort.*

Spikes ovoid or oblong, compact; wings broadly ovate or obovate; crest minute; seed obovate, hairy; caruncle nearly as long as the seed; leaves linear and oblong-linear; stem fastigiately branched. — *Michx. fl.* 2. *p.* 52; *Pursh, fl.* 2. *p.* 465; *Bigel. fl. Bost. p.* 264;

Bart. fl. Am. Sept. 2. *t.* 46. P. purpurea, *Nutt. gen.* 2. *p.* 88; *DC. prodr.* 1. *p.* 328; *Beck, bot. p.* 44; *Darlingt. fl. Cest. p.* 401; *Torr. & Gr. fl. N. Am.* 1. *p.* 127.

Annual. Stem 8 – 12 inches high, erect, sometimes simple, angular and slightly winged. Leaves about an inch long and 2 lines wide. Spike at first nearly globose, at length oblong, obtuse, 4 – 5 lines in diameter; lower flowers deciduous: bracts minute, the middle one longer than the pedicel. Wings usually dilated at the base, or somewhat cordate, rose-color and green, generally twice as long as the fruit. Style much dilated and cucullate in the middle, with a filiform bearded process at the summit. Seed grayish-black, hairy; processes of the caruncle linear.

Moist meadows and sandy fields; rather common. July – September.

2. POLYGALA CRUCIATA, *Linn.* *Cross-leaved Milk-wort.*

Spikes ovate, dense, sessile or on short peduncles; wings deltoid-cordate, acute or cuspidate; crest minute; caruncle nearly as long as the seed; stem somewhat fastigiately branched, winged on the angles; leaves verticillate in fours, linear and linear-spatulate, dotted.—*Michx. fl.* 2. *p.* 52; *Nutt. gen.* 2. *p.* 89; *DC. prodr.* 1. *p.* 328; *Ell. sk.* 1. *p.* 183; *Bigel. fl. Bost. p.* 266; *Hook. fl. Bor.-Am.* 1. *p.* 85; *Beck, bot. p.* 45; *Torr. & Gr. fl. N. Am.* 1. *p.* 127. P. brevifolia, *Nutt. l. c.*; *DC. l. c.* P. cuspidata, *Hook. & Arn. in bot. journ.* 1. *p.* 195.

Annual. Stem 4 – 8 inches high, with opposite somewhat erect branches. Leaves about an inch long and 2 lines wide, marked with obscure resinous dots. Spikes at first dense, usually sessile or nearly so, finally an inch or more in length and nearly half an inch in diameter. Wings greenish with a purple margin, longer than the capsule. Lateral petals oblong. Style as in the preceding species. Seed obovoid-oblong, sparsely hairy; lobes of the caruncle linear.

Sphagnous swamps; not rare in the southern parts of the State, but seldom found in the interior counties. August – September.

§ 2. *Spikes elongated or racemose: keel cristate: filaments united nearly to the summit: style dilated and cucullate in the middle: appendage of the caruncle 2-lobed.*

3. POLYGALA VERTICILLATA, *Linn.* *Whorl-leaved Milk-wort.*

Spikes pedunculate, acute, dense; rachis naked; wings roundish-obovate; crest conspicuous; stem erect, branching; leaves mostly verticillate, linear and lanceolate-linear, glandularly dotted.—*Michx. fl.* 2. *p.* 54; *Nutt. gen.* 2. *p.* 89; *Ell. sk.* 2. *p.* 182; *Bigel. fl. Bost. p.* 266; *DC. prodr.* 1. *p.* 329; *Hook. fl. Bor.-Am.* 1. *p.* 85; *Beck, bot. p.* 45; *Darlingt. fl. Cest. p.* 402; *Torr. & Gr. fl. N. Am.* 1. *p.* 130.

Annual. Stem slender, quadrangular, 6 – 10 inches high; branches erect, elongated. Leaves an inch long and 1½ line wide, mostly in whorls of 4 or 5, but sometimes partly or entirely alternate, acute. Spike an inch long, about 2 lines in diameter at the base, tapering

to a pretty acute point. Flowers about one line long, greenish-white, and sometimes tinged with purple. Bracts very deciduous. Exterior sepals unequal; posterior ones ovate, twice as large as the other two. Wings a little longer than the corolla. Lateral petals nearly as large as the wings, and somewhat spreading. Style dilated and saccate almost immediately above the ovary: gland inconspicuous, the terminal appendage subulate, with a hairy tuft at the extremity. Seed minute, obovoid, hairy. Lobes of the caruncle somewhat distant, oblong, about half the length of the seed.

Dry sandy soils, hill-sides and borders of woods; common. June – October.

4. POLYGALA AMBIGUA, *Nutt.* *Ambiguous Milk-wort.*

Spikes pedunculate, rather obtuse, dense; rachis squarrose with the persistent bracts; wings roundish; stem erect; leaves linear, not glandular, the lower ones sometimes verticillate, the others scattered. — *Nutt. gen.* 2. *p.* 89; *DC. prodr.* 1. *p.* 329; *Beck, bot. p.* 45; *Darlingt. fl. Cest. p.* 402; *Torr. & Gr. fl. N. Am.* 1. *p.* 130.

Annual. Stem 6 – 12 inches high, slender, somewhat angular, with erect branches. Leaves 6 – 8 lines long and about one line wide, mostly scattered. Spike of nearly uniform diameter, except near the summit, which is rather obtuse than acute, about three-fourths of an inch long. Flowers greenish-white, usually tinged (sometimes pretty strongly) with purple. Seeds as in *P. verticillata.*

Dry sandy woods and fields. August – September.

Nearly related to the preceding species, but pretty constant in its characters. It is distinguished by its shorter and thicker spikes, squarrose rachis, and most commonly scattered leaves which are destitute of glandular dots. In both species, the exterior sepals, the ovary and the keel of the corolla are marked with several oblong or linear vesicles, which are filled with a yellow farinaceous matter.

4. POLYGALA SENEGA, *Linn.* *Seneca Snake-root.*

Spike rather dense, somewhat acute; flowers on very short pedicels; wings orbicular-obovate, concave, rather longer than the obovate petals; capsule nearly orbicular; seed somewhat hirsute with spreading hairs; lobes of the caruncle collateral, spongy, nearly as long as the seed; stems numerous, simple; leaves lanceolate, scabrous on the margin. — *Willd. sp.* 3. *p.* 894; *Bot. mag. t.* 1051; *Bigel. med. bot.* 2. *p.* 97. *t.* 30, *and fl. Bost. p.* 265; *DC. prodr.* 1. *p.* 130; *Hook. fl. Bor.-Am.* 1. *p.* 85; *Beck, bot. p.* 45; *Darlingt. fl. Cest. p.* 403. P. Senega, var. albida, *Michx. fl.* 2. *p.* 53; *Pursh, fl.* 2. *p.* 465.

Root perennial, thick, rather ligneous, with coarse fibres. Stems about a foot high, assurgent or somewhat inclined, the base usually invested with small oval scale-like leaves, minutely scabrous-pubescent above, smooth below. Leaves 1 – 2 inches long and 3 – 5 lines wide, finely serrulate and fringed under a lens. Spike 1 – 2 inches long, somewhat inclined. Flowers nearly 2 lines long, greenish-white. Sepals all obtuse. Crest short. Style short,

galeate and somewhat beaked; the appendage wanting, but in its place a short tuft of hairs.

Dry rocky woods. *Fl.* Latter part of May to June.

The root of this plant is a valuable medicine, and is well known in the shops. It is principally employed as a stimulating expectorant and diaphoretic. Its powers depend on the polygalic acid which it contains. See *Wood & Bache's U. S. Dispens. p.* 601.

5. POLYGALA POLYGAMA, *Walt.* *Polygamous Milk-wort.*

Terminal racemes spiked, loose, the flowers at length pendulous; wings broadly obovate, spreading, longer than the corolla; crest conspicuous; radical racemes with wingless flowers; capsule oblong, emarginate; lobes of the caruncle more than half as long as the very hairy seed; stems numerous, assurgent; leaves oblong-lanceolate and oblong-linear. — *Walt. fl. Car. p.* 179; *Nutt. gen.* 2. *p.* 75; *Ell. sk.* 2. *p.* 181; *DC. prodr.* 1. *p.* 330; *Hook. fl. Bor.-Am.* 1. *p.* 86. *t.* 29; *Beck, bot. p.* 45; *Torr. & Gr. fl. N. Am.* 1. *p.* 133. P. rubella, *Willd. sp.* 3. *p.* 875; *Bigel. fl. Bost. p.* 264, *and med. bot. t.* 54; *DC. l. c.*

Biennial. Stems 5 – 10 inches high. Leaves about an inch long, slightly mucronate. Terminal racemes 10 – 25-flowered: pedicels slender. Flowers about 2½ lines long, deep rose-color or purplish. Wings with short claws. Style short and cucullate; gland exserted: appendage strongly bearded. Radical racemes leafless, prostrate, often subterranean. Seed almost villous: lobes of the caruncle somewhat distant.

Sandy fields and woods; pine plains near Rome, Oneida county, and in Suffolk county, Long Island. *Fl.* June – July. The whole plant is very bitter.

§ 3. CHAMÆBUXUS, Dill. *Flowers few, large, terminal: posterior sepal concave-cucullate, with a gland at the base on the inside: keel crested or callous at the tip. — Perennial herbs or small shrubs.*

6. POLYGALA PAUCIFOLIA, *Willd.* *Fringed Milk-wort.*

Rhizoma creeping and branching, throwing up simple erect branches, which are leafy at the summit, and furnished with scales below; leaves ovate, petioled; terminal flowers 2 – 3 (very large); crest fringed; radical flowers wingless. — *Willd. sp.* 3. *p.* 880; *Pursh, fl.* 2. *p.* 464; *Ell. sk.* 2. *p.* 180; *Bart. fl. Am. Sept.* 2. *t.* 56. *f.* 1; *Bigel. fl. Bost. p.* 266; *DC. prodr.* 1. *p.* 331; *Hook. in bot. mag. t.* 2852, *and fl. Bor.-Am.* 1. *p.* 86; *Beck, bot. p.* 45; *Torr. & Gr. fl. N. Am.* 1. *p.* 132. P. uniflora, *Michx. fl.* 2. *p.* 53. P. purpurea, *Ait. Kew.* 4. *p.* 244 (not of *Nutt.*). Trichosperma grandiflora, *Raf. specch.* 1. *p.* 7.

var. *alba*, Eights: flower solitary, smaller, white; stem somewhat leafy at the base. *Beck, bot. p.* 46; *Torr. & Gr. l. c.*

Perennial. Rhizoma slender, tortuous. Stalks 3 – 5 inches high; the lower part furnished with small ovate distant leafy scales. Leaves 4 – 5, about an inch long and half an inch or more wide, the margin minutely fringed. Flowers nearly three-fourths of an inch

long, purple or deep rose-color; the pedicels 3 – 4 lines long. Wings obovate, attenuate at the base, as long as the corolla. Lateral petals oblong, concave, united to the keel the greater part of their length: crest conspicuous, compound. Stamens 6: anthers 2-lipped, imperfectly 2-celled. Style long, a little curved, slightly enlarging upward; the orifice irregularly 4-toothed, without hairs. Capsule (immature) emarginate, strongly margined. Seeds . . . Radical flowers on short horizontal shoots.

Woods, usually in dry sandy soils; rarely in moist places: the variety *alba* in sandy plains near Albany (*Dr. Eights*). *Fl.* May. A small but very handsome species.

GROUP 12. *Character same as of the following order.*

ORDER XXXVII. LEGUMINOSÆ. *Juss.* THE BEAN TRIBE.

Calyx of 5 sepals, more or less combined. Corolla of 5 petals, either papilionaceous or regular, hypogynous. Stamens definite or indefinite, inserted with the petals, distinct, or monadelphous or diadelphous. Ovary solitary, simple, free from the calyx. Fruit a legume. Seeds destitute of albumen (except in a few cases).— Herbs, shrubs or trees. Leaves alternate and usually compound, furnished with stipules; the margin of the leaves or leaflets almost always entire.

Suborder I. PAPILIONACEÆ. *Linn.*

Sepals imbricated in æstivation. Corolla papilionaceous, or rarely almost regular. Stamens 10, diadelphous, sometimes monadelphous or distinct, inserted with the petals upon the base of the calyx.

CONSPECTUS OF THE TRIBES.

* *Corolla papilionaceous. Radicle incurved.*

Tribe I. VICIEÆ. Stamens diadelphous (9 & 1). Legume not articulated, dehiscent. Cotyledons thick and farinaceous, remaining underground during germination.— Herbs, with abruptly pinnated leaves; the petiole extended into a tendril.

Tribe II. PHASEOLEÆ. Stamens mostly diadelphous (9 & 1). Legume not jointed, but sometimes with cellular partitions between the seeds. Cotyledons thick.— Twining, herbaceous, or sometimes shrubby plants. Leaves pinnately trifoliolate, or sometimes unequally pinnate, stipellate.

Tribe III. GALEGEÆ. Stamens diadelphous, or sometimes monadelphous. Legume not jointed, several-seeded and dehiscent, or 1 – 2-celled and indehiscent. Cotyledons foliaceous.— Erect herbs, shrubs or trees. Leaves usually unequally pinnate, seldom stipellate.

Tribe IV. TRIFOLIEÆ. Stamens diadelphous. Legume not jointed, dehiscent and several-seeded, or 1 – 2-seeded and indehiscent.— Mostly low herbs. Leaves trifoliolate, without stipelles: leaflets often toothed or serrulate.

Tribe V. ASTRAGALEÆ. Stamens diadelphous. Legume turgid or inflated, often spuriously 2-celled longitudinally by the introflexion of one of the sutures.—Herbs, mostly with unequally pinnate leaves which are destitute of stipelles.

Tribe VI. HEDYSAREÆ. Stamens monadelphous or diadelphous. Legume (loment) transversely divided into several indehiscent one-seeded joints, or sometimes reduced to a single one-seeded cell.—Leaves (in all the United States genera) pinnately trifoliolate.

Tribe VII. GENISTEÆ. Stamens monadelphous: anthers of two forms. Legumes not jointed, but sometimes intercepted internally.— Leaves simple or palmately compound, not stipellate.

Tribe VIII. SOPHOREÆ. Stamens distinct: anthers uniform. Legume continuous, or frequently moniliform, but not jointed.

** *Corolla irregular, or sometimes nearly regular, never truly papilionaceous.*

Tribe IX. CASSIEÆ. Stamens distinct, sometimes fewer than 10: anthers mostly of two forms. Legume not jointed, or spuriously many-celled by transverse partitions between the joints.— Leaves pinnate or bipinnate.

TRIBE I. *VICIEÆ. DC.*

Corolla papilionaceous. Stamens diadelphous (9 & 1). *Legume continuous* (*not articulated*), *2-valved, dehiscent. Radicle bent back on the edge of the cotyledons. Cotyledons thick and farinaceous, remaining under ground unchanged in form during germination.— Herbs with abruptly pinnate leaves; the common petiole not articulated to the stem, extended beyond the apex into a bristle or tendril.*

CONSPECTUS OF THE GENERA.

1. VICIA. Style with a tuft of hair at the summit, particularly on the outside (next the keel).
2. ERVUM. Style pubescent on the sides, or all around, below the stigma.
3. LATHYRUS. Style pubescent on the inner surface (next the free stamen).

1. VICIA. *Tourn.; Endl. gen.* 6581. *VETCH.*

["Name originally derived from the Celtic word *gwig*" (DE THEIS); *wicken* in German; *vicia*, Latin; *vesce*, French.]

Calyx tubular-campanulate, 5-cleft or 5-toothed; the 2 upper teeth shortest. Style filiform, bent at a right angle with the ovary, villous at the apex, particularly on the outside (next the keel). Legume oblong, several-seeded.— Mostly climbing herbs. Leaflets in several pairs. Petioles produced into branching tendrils. Peduncles axillary.

* *Peduncles elongated.*

1. VICIA AMERICANA, *Muhl.* *American Vetch.*

Smooth; leaflets numerous (10 – 14), elliptical-lanceolate or ovate-oblong, obtuse or retuse, mucronate; stipules (small) semisagittate, deeply toothed; peduncles shorter than the leaves, 4 – 8-flowered; lower teeth of the calyx broadly lanceolate; style very villous at the apex; legumes linear-oblong, compressed, reticulated, smooth.— *Muhl. in Willd. sp.* 3. *p.* 1096;

Pursh, fl. 2. *p.* 471 ; *DC. prodr.* 2. *p.* 355 ; *Hook. fl. Bor.-Am.* 1. *p.* 157 ; *Darlingt. fl. Cest. p.* 424 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 269.

Stem 1 – 3 feet long, slender, somewhat quadrangular. Leaflets about three-fourths of an inch long, on very short partial petioles. Stipules many times smaller than the leaflets. Tendrils 2 – many-parted. Flowers about 8 lines long, purplish blue. Upper teeth of the pubescent calyx very short.

Moist shady places, particularly in the northern and western counties ; rare. June.

2. VICIA CRACCA, *Linn.* *Tufted Vetch.*

Stem branching ; leaflets numerous (20 – 24), oblong, minutely pubescent, mucronate ; stipules lanceolate, semisagittate, nearly entire ; peduncles many-flowered, about as long as the leaves, the flowers crowded, retrorsely imbricate ; teeth of the calyx shorter than the tube, the upper ones very short ; style hairy at the summit ; legume oblong, coriaceous, reticulated, smooth ; seeds globose, black.— *Michx. fl.* 2. *p.* 69 ; *Engl. bot. t.* 1168 ; *Pursh, fl.* 2. *p.* 472 ; *DC. prodr.* 2. *p.* 357 ; *Bigel. fl. Bost. p.* 269 ; *Hook. fl. Bor.-Am.* 1. *p.* 157 ; *Beck, bot. p.* 88 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 270.

Stem 2 – 3 feet long, slender. Leaflets about three-fourths of an inch long, usually rather obtuse. Raceme 15 – 30-flowered, at length often longer than the leaves. Flowers 4 – 6 lines long, bright blue or pale purple ; their pedicels short and pubescent. Legume compressed, brownish.

Borders of woods, fields, etc. ; western part of the State. June – July. Possibly an introduced plant, but it has much the appearance of being indigenous here.

3. VICIA TETRASPERMA, *Loisel.* *Slender Vetch.*

Smooth ; leaflets 4 – 6, oblong ; stipules lanceolate, semisagittate ; peduncles mostly 2-flowered ; teeth of the calyx lanceolate, shorter than the tube, the sinuses acute ; legume oblong, smooth, usually 4-seeded. — *Loisel. fl. Gall.* 1. *p.* 460 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 272. V. pusilla, *Muhl. in Willd. sp.* 3. *p.* 1106 ; *Pursh, fl.* 2. *p.* 471 ; *Bigel. fl. Bost. p.* 270. Ervum tetraspermum, *Linn. ; Engl. bot. t.* 1223 ; *DC. prodr.* 2. *p.* 367 ; *Torr. compend. p.* 264 ; *Hook. fl. Bor.-Am.* 1. *p.* 158.

Stems somewhat cespitose, 1 – 2 feet long, very slender, quadrangular. Leaves half an inch long, rather obtuse, tipped with a short fine point. Flowers very small, rarely solitary, sometimes 3 – 4 together. Peduncles at first rather shorter, but in fruit longer than the leaves, filiform. Corolla white, or tinged with purple. Legumes half an inch long, resembling minute peas. Seeds blackish, with a linear hilum, somewhat compressed.

Banks of rivers ; rather common in the neighborhood of the city of New-York, and for some distance up the Hudson. June – July. A native also of Europe.

** *Flowers nearly sessile.*

4. VICIA SATIVA, *Linn.* *Common Vetch* or *Tare.*

Stem simple; leaflets 6 – 12, varying from obovate-oblong to linear, retuse, mucronate; stipules semisagittate, toothed; flowers solitary or in pairs; calyx cylindrical, the segments as long as the tube, lanceolate-subulate, nearly equal; style short, bearded at the summit; legumes somewhat erect, torulose; seeds smooth.— *Engl. bot. t.* 234; *Michx. fl.* 2. *p.* 69; *Pursh, fl.* 2. *p.* 270; *DC. prodr.* 2. *p.* 360; *Bigel. fl. Bost. p.* 270; *Hook. fl. Bor.-Am.* 1. *p.* 157; *Beck, bot. p.* 89; *Darlingt. fl. Cest. p.* 425; *Torr. & Gr. fl. N. Am.* 1. *p.* 272.

Plant somewhat pubescent, annual. Stem a foot or more high, erect or decumbent. Leaflets about an inch long, conspicuously mucronate, the lower ones strongly retuse. Stipules usually marked with a dark spot. Tendrils branched. Flowers half an inch long, pale violet-purple. Legume 1 – 2 inches long, compressed, reticulated, slightly hairy, 8 – 10-seeded. Seeds orbicular, compressed, nearly black when ripe.

Fields, waste places, etc.; introduced from Europe. June – July.

Two varieties of this plant are cultivated in Europe, under the names of *Winter Tare* and *Summer Tare*. They yield valuable herbage for cattle.

2. ERVUM. *Tourn.; Endl. gen.* 6580. *TARE.*

[Said to be derived from the Celtic word *erw*, a ploughed field; some of its species being troublesome weeds.]

Calyx deeply 5-cleft; the segments nearly equal, linear, acute, about the length of the corolla. Style filiform, pubescent on the sides or all around below the stigma. Legume oblong, 2 – 4-seeded. Seeds orbicular or globose.—Annual plants. Leaflets usually numerous. Petioles terminating in tendrils. Peduncles axillary.

1. ERVUM HIRSUTUM, *Linn.* (Plate XXI.) *Hairy Tare.*

Leaves linear or linear-oblong, truncate or retuse, slightly mucronate; peduncles 3 – 6-flowered, about the length of the leaves; calyx hairy, the subulate segments rather shorter than the corolla; legumes oblong, obliquely truncate, 2-seeded, drooping.—*Engl. bot. t.* 971; *Torr. compend. p.* 264; *DC. prodr.* 2. *p.* 366; *Beck, bot. t.* 89; *Darlingt. fl. Cest. p.* 426; *Hook. fl. Bor.-Am.* 1. *p.* 158; *Torr. & Gr. fl. N. Am.* 1. *p.* 273. Vicia Mitchelli, *Raf. préc. découv. p.* 37; *Ell. sk.* 2. *p.* 224; *DC. l. c. p.* 360.

Annual. Stem branching, weak, climbing, 2 – 3 feet long, nearly smooth. Leaflets 8 – 20, about half an inch long and a line wide, narrow at the base. Stipules semisagittate, entire or cleft. Flowers very small, bluish-white. Legume scarcely half an inch long, torulose. Seeds nearly spherical, brownish.

Banks of rivers and thickets; common in the neighborhood, usually near salt water, and in company with *Vicia tetrasperma*. Probably an introduced plant.

3. LATHYRUS. *Linn.; Endl. gen.* 6582. *VETCHLING.*

[From the Greek, *lathuros*, a leguminous plant described by Theophrastus.]

Calyx campanulate, 5-cleft; the two upper segments somewhat shortest. Style usually somewhat flattened and dilated towards the summit, bent nearly at a right angle with the ovary, pubescent or villous along the inside (next the free stamen). Legume oblong, several-seeded.—Mostly perennial, climbing herbs. Leaflets in from one to several pairs. Petioles terminating in tendrils. Peduncles axillary.

1. LATHYRUS MARITIMUS, *Bigel.* *Sea-side Vetchling. Beach Pea.*

Plant usually smooth; stem stout, at length decumbent; leaflets 4 – 6 pairs, oval or slightly obovate; stipules cordate-hastate, nearly the size of the leaflets; peduncles 6 – 10-flowered, rather shorter than the leaves; segments of the calyx hairy on the margin, the two upper ones triangular and shorter, the others lanceolate. — *Bigel. fl. Bost. p.* 268; *Hook. Brit. fl. ed.* 4. *p.* 270; *Torr. & Gr. fl. N. Am.* 1. *p.* 273. L. venosus, *Brit. fl. gard.* (*ser.* 2.) *t.* 37. L. Californicus, *Dougl.; Lindl. bot. reg. t.* 1144. L. pisiformis, *Hook. fl. Bor.-Am.* 1. *p.* 158. Pisum maritimum, *Linn.; Engl. bot. t.* 1047; *Nutt. gen.* 2. *p.* 95; *DC. prodr.* 2. p. 368; *Torr. compend. p.* 263.

Perennial. Stem 1 – 2 feet long, angular, but not winged. Leaflets often scattered on the petiole, of a firm texture, 1½ – 2 inches long, with prominent reticulated veins. Stipules usually somewhat toothed below. Tendrils branching. Flowers large and showy, purple; the wings and keel paler. Legume oblong, somewhat falcate.

Sandy seacoast of Long Island; abundant, and on the shore of Lake Ontario. Lake Erie, near Dunkirk, and Oneida lake (*Dr. Knieskern*). June – July. This plant was very properly removed to the genus *Lathyrus* by Dr. Bigelow.

2. LATHYRUS OCHROLEUCUS, *Hook.* (Plate XXII.) *Cream-colored Vetchling.*

Whole plant smooth, pale and somewhat glaucous; leaflets 3 – 4 pairs, broadly oval or ovate, thin; stipules semicordate, smaller than the leaflets, entire or obtusely toothed at the base; peduncles 7 – 10-flowered, shorter than the leaves; upper segments of the calyx broadly triangular, and scarcely half the length of the oblong lateral ones; the lower, lanceolate, and a little longer; corolla yellowish-white. — *Hook. fl. Bor.-Am.* 1. *p.* 159; *Gray in ann. lyc. N. York*, 1. *p.* 225; *Torr. & Gr. fl. N. Am.* 1. *p.* 275. L. glaucifolius, *Beck, bot. p.* 90. L. pisiformis, *Richards. in app. Frankl. journ. ed.* 2. *p.* 28.

Stem slender, somewhat angular but not winged, 1½ – 2½ feet long. Leaflets 1 – 2 inches long, usually three pairs. Stipules variable in size, but seldom more than half as large as the leaves. Flowers rather smaller than in the preceding species. Calyx obtuse at the base; the teeth slightly hairy on the margin. Legume linear-oblong, compressed, smooth.

Shady hill-sides and banks of streams, Gorham, Ontario county; also in Yates county (*Dr. Sartwell*); Jefferson county (*Dr. Crawe*). *Fl.* June – July.

3. LATHYRUS MYRTIFOLIUS, *Muhl.* *Myrtle-leaved Vetchling.*

Whole plant smooth; stem slender, often slightly winged; leaflets 2 – 3 (rarely 4) pairs, oval-elliptical or oblong, obtuse at each end; stipules ovate-semisagittate, smaller than the leaflets, nearly entire; peduncles 3 – 6-flowered, longer than the leaves; upper teeth of the calyx broad and shortest, the others triangular-lanceolate. — *Muhl. in Willd. sp.* 3. *p.* 1091; *Pursh, fl.* 2. *p.* 471; *DC. prodr.* 2. *p.* 371; *Hook. fl. Bor.-Am.* 1. *p.* 159; *Torr. & Gr. fl. N. Am.* 1. *p.* 275. L. stipulaceus, *Le Conte in Torr. cat. pl. N. York, p.* 92; *DC. l. c.; Hook. l. c.*

Stem 2 – 4 feet long, climbing or straggling. Leaflets 1 – 1½ inch long and half an inch or more in breadth, somewhat glaucous underneath, rather coriaceous, with prominent veins. Stipules usually much smaller than the leaflets, but sometimes half an inch long, acute at each end, often coarsely toothed at the base. Flowers pale purple; the wings and keel whitish. Legume oblong-linear, compressed, smooth.

Banks of rivers, borders of swamps, etc. Northern and western counties; also in the neighborhood of New-York.

This plant can generally be distinguished from the following, by its more slender stem, and broader leaflets and stipules; but there sometimes occur forms that seem almost intermediate between the two species.

4. LATHYRUS PALUSTRIS, *Linn.* *Marsh Vetchling.*

Plant mostly smooth; stems often winged, rather rigid; leaflets 3 (sometimes 4) pairs, oblong, lanceolate or linear-lanceolate, somewhat coriaceous; stipules semisagittate, lanceolate, acuminate at each end; peduncles 3 – 5-flowered.—*Linn. sp.* 1034; *Engl. bot. t.* 169; *Michx. fl.* 2. *p.* 66; *Pursh, fl.* 2. *p.* 471; *Bigel. fl. Bost. p.* 209; *DC. prodr.* 2. *p.* 371; *Hook. fl. Bor.-Am.* 1. *p.* 161; *Torr. & Gr. fl. N. Am.* 1. *p.* 276.

Stem 2 – 3 feet long, climbing or straggling, rarely pubescent, the angles commonly more or less winged. Leaflets 1½ – 2½ inches long, often not more than 3 – 4 lines wide. Peduncles at length exceeding the leaves. Calyx tinged with purple; the upper teeth short and triangular; the lower and lateral ones lanceolate, about the length of the tube. Corolla bluish purple. Legume broadly linear, compressed, pubescent.

Wet borders of streams; common in the northern and western parts of the State. *Fl.* July – August.

TRIBE II. *PHASEOLEÆ. Brown; Benth.*

Corolla papilionaceous. Stamens mostly diadelphous (9 & 1). Legume continuous, dehiscent, never separating into joints, but often torose, and with cellular partitions between the seeds. Cotyledons thick: radicle incurved.—Mostly twining, herbaceous or shrubby plants. Leaves usually pinnately trifoliolate (rarely reduced to a single leaflet), sometimes unequally pinnate, stipellate. Inflorescence axillary.

CONSPECTUS OF THE SUBTRIBES AND GENERA.

Subtribe 1. EUPHASEOLEÆ. Ovary with several ovules. Inflorescence racemose. Style often indurated above the middle. Cotyledons thick, nearly unaltered in germination.

* *Leaves pinnately trifoliolate.*

4. PHASEOLUS. Keel, with the stamens and style, spirally twisted or circinate.

** *Leaves unequally pinnate.*

5. APIOS. Keel, with the stamens and style, at length spirally twisted. Legume nearly terete. Root tuberous. Leaves 5 – 7-foliolate.

Subtribe 2. GLYCINEÆ. Ovary with several ovules. Inflorescence racemose. Style not indurated. Cotyledons flattish, foliaceous in germination.

6. GALACTIA. Calyx 4-cleft. Vexillum incumbent, broad, without callosities. Legume compressed, linear, many-seeded.— Leaves pinnately trifoliolate.

Subtribe 3. CLITORIEÆ. Ovary with several ovules. Vexillum large, not appendiculate at the base. Inflorescence axillary: peduncles 1 – many-flowered, often cymose-fasciculate.

7. CLITORIA. Calyx tubular, 5-cleft at the summit. Vexillum not spurred on the back. Style longitudinally hairy. Legume stipitate, linear-oblong, torulose; the valves nerveless.— Twining herbs, with trifoliolate leaves and very large flowers.

8. AMPHICARPÆA. Flowers of two kinds; upper ones perfect, in many-flowered racemes, the legume linear-oblong, 3 – 4-seeded: lower flowers on prostrate branches (often subterraneous), imperfect or apetalous, producing obovate 1 – 2-seeded legumes.— Twining herbs with trifoliolate leaves.

Subtribe 1. EUPHASEOLEÆ, *Benth. Ovary with several ovules. Style often indurated above the middle. Vexillum with two appendages at the base. Cotyledons nearly unchanged in germination.*

4. PHASEOLUS. *Linn.; Endl. gen.* 6674. *KIDNEY BEAN.*

[Latin, *phaselus*, a little boat; from the form of the legumes.]

Calyx campanulate, 5-toothed or 5-cleft; the 2 upper teeth often more or less united. Keel, with the stamens and style, spirally twisted or circinate. Legume linear or falcate, more or less compressed, or somewhat terete, many-seeded. Hilum small, oval-oblong, naked, or rarely with a small membranaceous strophiole.— Herbaceous (in tropical countries often suffrutescent), twining or trailing plants. Leaves pinnately trifoliolate: leaflets with conspicuous stipelles. Pedicels usually in pairs.

§ 1. DREPANOSPRON, Benth. *Stipules not produced at the base; teeth of the calyx broad, much shorter than the tube: legume compressed, broad and falcate.*

1. PHASEOLUS PERENNIS, *Walt.* (Plate XXIII.) *Perennial Kidney-bean.*

Perennial; leaflets broadly ovate, acuminate, palmately 3-veined; racemes solitary or somewhat clustered, simple or a little branched, longer than the leaves; legumes pendulous. —*Walt. fl. Car. p.* 182; *Pursh, fl.* 2. *p.* 469; *Beck, bot. p.* 91; *Darlingt. fl. Cest. p.* 429; *Torr. & Gr. fl. N. Am.* 1. *p.* 279. P. perennis *and* macrostachyus, *Ell. in jour. acad. Phil.* 1. *p.* 384; *DC. prodr.* 2. *p.* 391. P. paniculatus, *Michx. fl.* 2. *p.* 60. Dolichos polystachyos, *Linn.; Willd. sp.* 3. *p.* 1049.

Stem 4 – 10 feet long, pubescent, climbing over shrubs and bushes. Leaflets 2 – 3 inches long, and often nearly as broad as long; under surface clothed with short uncinate hairs, by which the leaves adhere to paper, clothing, etc. Stipules small, lanceolate. Racemes numerous, 4 – 12 inches long, slender, loosely flowered: pedicels filiform, 2 – 4 lines long, with 3 minute hairy bracts at the base. Calyx campanulate, much shorter than the corolla, somewhat bilabiate. Corolla purple. Legume 2 – 2½ inches long and 4 – 5 lines wide, strongly falcate, 4 – 5-seeded. Seeds oblong-reniform or roundish, somewhat compressed, dark purple, smooth.

Borders of woods, and in shady copses. Island of New-York, and Long Island, near Brooklyn. Latter part of July – August. *Fr.* September. I have found this species only in the southern part of the State. It is highly ornamental when in full flower.

§ 2. STROPHOSTYLES, Ell. *Stipules adhering to the petiole, produced and free at the base; lower tooth of the calyx as long or longer than the tube: legume linear, straight, somewhat terete.*

2. PHASEOLUS DIVERSIFOLIUS, *Pers.* *Various-leaved Kidney-bean.*

Annual; stem prostrate, diffuse, retrorsely and roughly hairy; leaflets broadly ovate, angular or 2 – 3-lobed, sometimes entire, about the length of the petioles; stipules lanceolate; peduncles longer than the leaves; flowers few, capitate; legume slightly pubescent, broadly linear, nearly terete, 6 – 7-seeded; seeds oblong-cylindrical, woolly. — *Pers. syn.* 2. *p.* 296; *DC. prodr.* 2. *p.* 394; *Torr. & Gr. fl. N. Am.* 1. *p.* 279. P. trilobus, *Michx. fl.* 2. *p.* 60, not of *Roth*; *Pursh, fl.* 2. *p.* 470; *Bigel. fl. Bost. p.* 268. P. angulosus, *Ort.*; *DC. l. c.?* Glycine angulosa, *Muhl. in Willd. sp.* 3. *p.* 1056. Strophostyles angulosa, *Ell. sk.* 2. *p.* 229. Dolichos? angulosus, *DC. l. c. p.* 369, excl. syn. *Walt.*

Roots often bearing numerous small roundish tubes, from the size of a peppercorn to that of a pea. Stem 2 – 6 feet long, rather stout, usually spreading on the ground. Leaflets 1½ – 2½ inches long, commonly more or less distinctly 3-lobed; the lobes rather obtuse. Peduncles, when in flower, but little longer than the leaves; in fruit, about twice as long, 4 – 6 – 8-flowered. Calyx with 2 lanceolate lateral bracteoles; lower tooth narrow, one-third

longer than the tube. Corolla purplish red: keel with a very long curved beak, without a tooth at the base. Legume 3 – 3½ inches long and 3 – 4 lines wide, black when ripe. Seeds about twice as long as wide, nearly cylindrical, covered with a kind of mealy pubescence, which easily rubs off, leaving a smooth purplish testa: hilum linear.

Common on sandy shores, particularly in the neighborhood of New-York. I have not found it above the Highlands. August – September.

3. PHASEOLUS HELVOLUS, *Linn.* *Long-stalked Kidney-bean.*

Perennial; stem slender, hairy backwards; leaflets ovate, oblong, usually entire, about the length of the petiole; stipules lanceolate; peduncles slender, 3 – 6 times as long as the leaves; flowers few, capitate; legume narrowly linear, 9 – 11-seeded, slightly pubescent; seeds pubescent, reniform-quadrangular. — *Linn. sp.* 1017; *Pursh, fl.* 2. *p.* 470; *Michx. fl.* 2. *p.* 60; *DC. prodr.* 2. *p.* 395; *Torr. & Gr. fl. N. Am.* 1. *p.* 280. P. vexillatus, *Linn. l. c.?*; *Pursh, l. c.*; *DC. l. c.*; *Beck, bot. p.* 92; *Darlingt. fl. Cest. p.* 430. C. peduncularis, *Ell. sk.* 2. *p.* 230. Glycine peduncularis, *Muhl. cat. p.* 67.

Stems 3 – 4 feet long, much more slender than in the preceding species. Leaflets 1 – 1¾ inch long, rarely somewhat 3-lobed. Peduncles usually 3 – 5-flowered, sometimes 8 – 10 inches long. Flowers nearly as in the preceding species: beak of the keel with a tooth at the base. Legume about 2½ inches long and 2 lines wide. Seeds covered with a mealy pubescence, somewhat truncate at each end, so that they have a square outline: hilum linear-oblong.

Sandy fields, Long Island; not found elsewhere in the State. *Fl.* August – September.— This species can in general be easily distinguished from the preceding, by its perennial root, long peduncles, and very narrow legumes.

5. APIOS. *Boerh.; Moench, meth. p.* 165; *Endl. gen.* 6673. *GROUND-NUT.*

[Greek, *apios*, a pear; from the form of its tuberous roots.]

Calyx broadly campanulate, obscurely 2-lipped; the upper lip of two short rounded teeth. Vexillum very broad, with a longitudinal fold in the centre, reflexed: keel long, falcate, and with the stamens and style at length spirally twisted. Stigma emarginate. Legume somewhat terete, slightly falcate, many-seeded. Seeds reniform. — A perennial, twining, nearly smooth herb. Root producing numerous small, oblong or pear-shaped, somewhat edible tubers. Leaves 5 – 7-foliolate, with minute stipules. Racemes axillary, dense, sometimes compound; the pedicels short, growing 3 or 4 together from little knobs of the rachis. Calyx with 2 minute caducous bracteoles at the base. Flowers brownish purple.

1. APIOS TUBEROSA, *Moench.* *Ground-nut.*

Moench, l. c.; Pursh, fl. 2. p. 273; Nutt. gen. 2. p. 113; Ell. sk. 2. p. 235; DC. prodr. 2. p. 391; Torr. compend. p. 270; Hook. fl. Bor.-Am. 1. p. 161; Darlingt. fl. Cest. p. 428; Beck, bot. p. 91; Torr. & Gr. fl. N Am. 1. p. 282. Glycine Apios, *Linn.; Bot. mag. t. 1198; Michx. fl. 2. p. 83; Bigel. fl. Bost. p. 277.*

Root producing fleshy tubers about the size of a chestnut, arranged at intervals like beads. Stem 4 – 8 feet long, climbing over bushes, nearly smooth. Leaflets ovate-lanceolate, 2 – 3 inches long, acuminate, each articulated to the common petiole by a short hairy stalk. Racemes shorter than the leaves. Flowers in crowded oval racemes, rather fragrant, of a dull purple mixed with green. Legume 3 – 5 inches long, 8 – 10-seeded. Seeds dark purple: hilum very small.

Low grounds and moist thickets; rather common in many parts of the State. *Fl.* August. *Fr.* September. The tubers are farinaceous, and would probably increase in size and quality by cultivation.

Subtribe 2. GLYCINEÆ, *Benth. Ovary with several ovules. Inflorescence racemose, with the pedicels more or less aggregated on small alternate knobs. Bracteoles very small, often deciduous. Vexillum usually with two small appendages at the base. Style not indurated. Cotyledons flat, foliaceous in germination.*

6. GALACTIA. *P. Browne; Endl. gen. 6653.* *MILK PEA.*

[Named from the Greek, *gala*, milk; some of the species yielding a milky juice when wounded.]

Calyx 4-cleft; segments acute, of nearly equal length; the upper one broadest. Vexillum incumbent, broad: keel-petals slightly cohering towards the apex. Legume compressed, linear, many-seeded. Seeds orbicular or somewhat reniform.—Twining or prostrate (rarely erect) herbaceous plants. Leaves pinnately trifoliolate. Racemes axillary, usually loosely flowered. Flowers purplish.

1. GALACTIA GLABELLA, *Michx.* *Smooth Milk-vine.*

Stem prostrate, nearly smooth; leaflets elliptical-oblong or ovate-oblong, obtuse, emarginate, smooth above, slightly hairy underneath; racemes at length a little longer than the leaves; flowers approximated, distinctly pedicellate; calyx nearly smooth; legumes somewhat hairy. — *Michx. fl. 2. p. 62; Nutt. gen. 2. p. 117; Ell. sk. 2. p. 239; DC. prodr. 2. p. 238; Beck, bot. p. 81; Darlingt. fl. Cest. p. 409; Torr. & Gr. fl. N. Am. 1. p. 287.* Glycine regularis, *Linn.; Willd. sp. 3. p. 1049.*

Root fusiform. Stems numerous, 2 – 4 feet long, spreading on the ground, or sometimes twining, slightly pubescent. Leaflets about an inch and a half long, often somewhat cordate

at the base, bright green and somewhat shining above, paler underneath : partial stalks hairy, with minute deciduous stipelles at the base : common petiole an inch long. Racemes 4 – 8-flowered, at first usually shorter than the leaves, but at length (particularly in fruit) exceeding them. Calyx-segments erect, the lowest one longest. Corolla reddish purple and white, with tinges of green, very handsome. Anthers linear-oblong. Style long and filiform. Legume slightly falcate, 1½ – 2 inches long, 4 – 6-seeded.

Hill-sides near the Hudson river, Peekskill (*Dr. S. B. Mead*). July – August. — I have not seen the plant collected by Dr. Mead, and therefore describe from specimens collected in New-Jersey, where this species is very common. It will very probably be found in the sandy soils of Long Island, although I have not yet detected it there.

Subtribe 3. CLITORIEÆ, *Benth.* *Ovary with several ovules. Inflorescence axillary : peduncles 1 – 2-flowered at the summit, or many-flowered, with the racemes often fasciculate or branching. Bracts (except in* AMPHICARPÆA) *and bracteoles opposite, striate. Vexillum large, not appendiculate at the base. — Flowers commonly large.*

7. CLITORIA. *Linn.* (in part) ; *Benth. comm. Legum. gen. p.* 50 ; *Endl. gen.* 6635.

[Name derived from an anatomical term.]

Calyx tubular, 5-toothed ; the teeth much shorter than the tube ; lowest one lanceolate, the others triangular-ovate. Vexillum very large, emarginate or bifid, not spurred on the back : keel small, shorter than the wings, incurved, acute, on very long claws. Style dilated at the apex, longitudinally bearded. Legume stipitate, linear or linear-oblong, torulose, flattish, without nerves. Seeds orbicular, somewhat compressed.— Twining, perennial herbs. Leaves pinnately trifoliolate. Stipules somewhat persistent, striate : partial stipules setaceous. Peduncles 1 – 2- (or many-) flowered. Bracts similar to the stipules : bracteoles larger. Flowers very large.

1. CLITORIA MARIANA, *Linn.* (Plate XXIV.) *Maryland Clitoria.*

Smooth ; stem trailing or somewhat twining ; leaves trifoliolate ; leaflets more or less ovate ; peduncles short, 1 – 3-flowered ; bracteoles lanceolate-subulate, much shorter than the calyx, similar in size and form to the bracts ; legumes linear-oblong, 4 – 8-seeded, smooth.—*Walt. fl. Car. p.* 186 ; *Willd. sp.* 3. *p.* 1070 ; *Michx. fl.* 2. *p.* 62 ; *Nutt. gen.* 2. *p.* 118 ; *Ell. sk.* 2. *p.* 240 ; *DC. prodr.* 2. *p.* 234 ; *Beck, bot. p.* 80 ; *Torr. compend. p.* 271.

Stem 2 feet or more in length, usually trailing over small bushes. Leaflets about 2 inches long, rather obtuse, sometimes a little cordate, the middle one distant. Peduncles seldom more than two- and often one-flowered. Bracteoles about one-fourth the length of the calyx.

Flower two inches in length, pale blue tinged with purple. Legume 2 – 3 inches long and about one-third of an inch wide, strongly torulose; the stipe stout, as long as the peduncle. Seed the size of small peas, covered with a glutinous kind of varnish, brown; the hilum small and roundish.

Sandy soil on a bushy hill-side about half a mile from the South Ferry, Brooklyn; the only known locality of this beautiful plant in the State. *Fl.* Latter part of July – August. *Fr.* September.

8. AMPHICARPÆA. *Ell. in jour. acad. Phil.* 1. *p.* 372; *Torr. & Gr. fl. N. Am.* 1. *p.* 292; *Endl. gen.* 3660. *HOG-NUT.*

[Greek, *amphi*, on both sides, and *carpos*, fruit; producing fruit both above and under ground.]

Flowers of two kinds; those of the upper many-flowered racemes perfect and petaliferous, but often sterile; those at the base of the stem or underground mostly on one- or few-flowered peduncles, imperfect and deformed, but usually fertile. PERFECT FL. Calyx tubular-campanulate, 4-toothed, without bracts. Vexillum incumbent, and partly folded round the other petals. Ovary 4-ovuled: style smooth: stigma small, capitate. Legume linear-oblong, stipitate, compressed, somewhat scimitar-shaped, 3 – 4-seeded. IMPERFECT or APETALOUS FL. Calyx nearly as in the petaliferous flowers. Corolla none, or with the rudiment of a vexillum. Stamens either wanting or 5 – 10, several of them bearing perfect anthers, the others rudimentary: filaments distinct. Ovary 1 – 3-ovuled, with a short recurved style. Legume obovate or pyriform, 1 – 2-seeded, usually maturing beneath the surface of the ground.—Annual, twining or sarmentose herbs. Stems retrorsely pubescent. Leaves pinnately trifoliolate. Stipules resembling the bracts, striate. Racemes of the perfect flowers often somewhat compound: bracts orbicular, often emarginate or 2-cleft (each formed by the union of a pair), clasping.

1. AMPHICARPÆA MONOICA, *Torr. & Gr.* *Common Hog-nut.*

Racemes of the petaliferous flowers nodding; teeth of the calyx short and broad, somewhat triangular; bracts shorter than the pedicels.— *Torr. & Gr. l. c.* A. monoica & sarmentosa, *Ell. l. c., and sk.* 2. *p.* 233; *Nutt. gen.* 2. *p.* 213; *DC. l. c.; Beck, bot. p.* 91; *Darlingt. fl. Cest. p.* 427. Glycine monoica, comosa *and* bracteata, *Linn.; Willd. sp.* 3. *p.* 1058 (also G. sarmentosa); *Pursh, fl.* 2. *p.* 485. G. monoica, *Michx. fl.* 2. *p.* 64; *Bigel. fl. Bost. p.* 276. Cryptolobus Americanus *and* sarmentosus, *Spreng. syst.* 3. *p.* 218.

Root fibrous and branching, usually producing numerous small subterranean flowers. Stem slender, 3 – 8 feet long, climbing over shrubs, etc., angular, more or less hairy or villous; the hairs retrorse, and more or less appressed, but sometimes spreading, and of a brownish

color. Leaflets smooth or pubescent, 1½ – 3 inches long, rhombic-ovate or oblong-ovate, the lateral ones oblique. Racemes of the stem about an inch long, on rather short slender peduncles, solitary or in pairs. Bracts persistent, about a line and a half in diameter. Flowers pale purple or nearly white, clustered or in pairs in the axils of the bracts. Vexillum broadly obovate-oblong. Keel and wing-petals similar. Apetalous flowers produced on slender, prostrate, simple or branching peduncles, thrown out from near the base of the stem, or growing directly from the fibrous roots, the former usually partly or wholly covered with loose earth or decaying leaves. Legumes of the stem about an inch long and a third of an inch wide, hairy along the sutures. Seeds orbicular, compressed, dark purple. Underground legumes short and thick, hairy, usually perfecting but one seed, and that larger than those produced by the stem flowers.

Woods and thickets; common. August – September. In places where this curious plant abounds, the hogs often root up the ground to obtain the subterraneous nuts.

TRIBE III. *GALEGEÆ. Brown* (partly).

Corolla papilionaceous (or otherwise irregular). Stamens diadelphous (9 & 1), *or sometimes monadelphous. Legume continuous, dehiscent, one-celled, several-seeded (rarely with cellular transverse partitions between the seeds, but never separating into joints); or* 1 – 2*-seeded and indehiscent. Radicle incurved or inflexed. Cotyledons foliaceous.— Erect herbs, shrubs or trees. Leaves usually unequally pinnate, seldom stipellate. Inflorescence axillary or terminal, in racemes or spikes.*

* *Leaves unequally pinnate.*

9. ROBINIA. *Linn.; DC. mem. Leg. p.* 273; *Endl. gen.* 6546. LOCUST.

[In honor of JOHN and VESPASIAN ROBIN, French botanists, who introduced the *Locust* into Europe more than 200 years ago.]

Calyx short, somewhat campanulate, 5-toothed or 5-cleft; the two upper segments shorter, approximated or cohering. Vexillum broad and large: keel obtuse. Stamens diadelphous. Style bearded along the inner side. Legume many-seeded, compressed, straight, nearly sessile; the seminiferous suture margined: valves thin. Seeds reniform.—Trees or shrubs (exclusively North American), usually bearing stipular spines. Leaves unequally pinnate: leaflets petiolulate, stipellate. Flowers showy, white or rose-color, in simple, usually pendant axillary racemes.

1. ROBINIA PSEUDACACIA, *Linn.* *Common Locust-tree.*

Branches armed with stipular spines; racemes loose, drooping and (as well as the legumes) smooth; leaflets ovate and oblong-ovate.— *Lam. ill. t.* 606; *Michx. fl.* 2. *p.* 65; *Pursh, fl.* 2. *p.* 487; *Ell. sk.* 2. *p.* 242; *Michx. f. sylv.* 2. *p.* 1. *t.* 76; *DC. prodr.* 2. *p.* 261; *Beck, bot. p.* 82; *Darlingt. fl. Cest. p.* 410; *Torr. & Gr. fl. N. Am.* 1. *p.* 294.

A tree seldom more than 40 or 50 feet high, but occasionally attaining a height of 90 feet. The young plant is armed with very strong and sharp prickles, which disappear after the trunk is 3 – 4 inches in diameter. The wood is compact, hard and very durable, generally of a greenish-yellow color, but sometimes reddish or white. Leaflets in from 4 to 9 pairs, thin and membranaceous, furnished with minute setaceous stipelles. Racemes 3 – 5 inches long: pedicels one-third of an inch long. Flowers about as large as a pea-blossom, mostly resupinate when fully expanded, white and fragrant. Lower tooth of the calyx subulate. Legume 2 – 3 inches long and half an inch wide, 4 – 6-seeded, rather obtuse. Seeds dark brown.

Not indigenous in any part of the State, but common about houses, and cultivated for the sale of its wood: almost naturalized in many places. *Fl.* May – June. *Fr.* September.

The *Locust* is one of the most valuable trees of this or of any other country. Its wood grows rapidly, and long resists decay, even under the most unfavorable circumstances. It is chiefly used for posts, and underground structures. The most durable kind is that with a reddish heart, and the white-heart variety is the least so. Its strength is as remarkable as its durability, and hence it is employed in shipbuilding; but it can hardly be obtained in sufficient quantity, and of the requisite size, to be extensively used for this purpose. It answers admirably for *trenails*, or the pins by which the planks are fastened to the sides of the vessel. In the Northern States, where the cultivation of the Locust has been attended to, great numbers of the trees have been destroyed by the grub of an insect that perforates the wood in every direction, quite to the centre. The largest locust trees that I have noticed in New-York, are those on the estate of J. P. Dewint, Esq. at Fishkill Landing, Dutchess county, where they are about ninety feet in height.

In the western part of the State, *R. viscosa* is almost naturalized in some places, being used for hedge-fences.

10. TEPHROSIA. *Pers syn.* 2. *p.* 328; *Endl. gen.* 6539. TEPHROSIA.

[From the Greek, *tephros*, ash-colored; in allusion to the color of the foliage.]

Calyx without bracteoles, about equally 5-cleft or 5-toothed. Vexillum large, roundish, spreading or reflexed, usually pubescent on the outside: keel obtuse, cohering with the wings. Stamens monadelphous, or occasionally diadelphous; the tenth filament sometimes half united with the others. Style filiform: stigma obtuse, pubescent. Legume linear, much compressed, many-seeded: valves usually flat. — Shrubby or herbaceous plants, clothed with a silky villous pubescence. Leaves unequally pinnate. Stipules free from the petiole, lanceolate or subulate, never sagittate. Flowers in racemes, white or purplish.

§. BRISSONIA, Neck. *Style longitudinally bearded. Legume more or less velvety or hispid. Seeds reniform, compressed.*

1. TEPHROSIA VIRGINIANA, *Pers.* *Goat's Rue. Catgut.*

Stem villous-pubescent, erect; leaves nearly sessile; leaflets 8 – 14 pairs, oblong-linear or elliptical, mucronate, silky villous underneath, minutely silky-pubescent above; calyx very villous, the segments acuminate and cuspidate, about the length of the tube. — *Pers. syn.* 2. *p.* 329; *Ell. sk.* 2. *p.* 245, *Nutt. gen.* 2. *p.* 119; *DC. prodr.* 2. *p.* 248; *Hook. fl. Bor.-Am.* 1. *p.* 139; *Beck, bot. p.* 81; *Darlingt. fl. Cest. p.* 409; *Torr. & Gr. fl. N. Am.* 1. *p.* 296. Galega Virginiana, *Linn.; Willd. sp.* 3. *p.* 1244; *Michx. fl.* 2. *p.* 67.

Roots slender, long and tough. Whole plant clothed with a whitish pubescence. Stems about a foot high, usually clustered, sometimes inclined. Leaflets about an inch long, of variable breadth, sometimes only about 2 lines wide, but more commonly about one-third of an inch. Flowers in a dense terminal raceme, about the size of a pea-blossom, dull yellow handsomely tinged with purple. Legume about 2 inches long and 3 lines wide, villous, 6 – 8-seeded. Seeds brownish, often speckled.

Dry sandy soils; often on hill-sides: rather common. *Fl.* Middle of June to the end of July. *Fr.* September. Dr. Darlington states that an infusion of the root is a popular vermifuge.

TRIBE IV. *TRIFOLIEÆ. Bronn.*

Corolla papilionaceous. Stamens diadelphous (9 & 1). *Legume continuous, one-celled, dehiscent and several-seeded, or nearly indehiscent with one or few seeds. Radicle inflexed. — Erect or procumbent, mostly low herbs, rarely somewhat shrubby. Leaves palmately or pinnately trifoliolate, without stipelles: leaflets often toothed or serrulate! Inflorescence in racemes, spikes, heads or umbels, which are either terminal or axillary.*

CONSPECTUS OF THE GENERA.

11. TRIFOLIUM. Legumes (small) mostly shorter than the calyx, one- or several-seeded, membranaceous, indehiscent, or only opening by the ventral suture. — Flowers more or less capitate.

12. MELILOTUS. Legume globose or ovoid, longer than the calyx, rugose, scarcely dehiscent. — Flowers in racemose spikes.

13. MEDICAGO. Legume falcate or spirally twisted, compressed, membranaceous.

11. TRIFOLIUM. *Tourn. inst. t.* 228; *Endl. gen.* 6511. *CLOVER. TREFOIL.*

[Named from the Latin, *tres*, three, and *folium*, a leaf.]

Calyx tubular or campanulate, 5-cleft or 5-toothed; the segments or teeth subulate or setaceous. Corolla mostly persistent or marcescent; the petals all usually more or less united at the base, free from (or occasionally coherent with) the stamen-tube. Vexillum longer

than the wings, and mostly longer than the keel. Ovary 2 – 6-ovuled: style filiform. Legumes small, membranaceous, 1 – 2- or sometimes 3 – 6-seeded, indehiscent or often dehiscent by the ventral suture, included in the calyx-tube, or sometimes exserted on a short stipe. — Herbs, often cæspitose or diffuse. Leaves palmately 3- (rarely 5 – 7-) foliolate, or occasionally pinnately trifoliolate: leaflets usually denticulate; the veins straight, simple or forked. Stipules growing to the base of the petiole. Flowers in dense spikes or heads; sometimes only few, and then umbellate, bracteate.

* *Corolla marcescent or deciduous, never yellow: flowers in ovate heads, not deflexed when old: calyx not inflated after flowering.*

1. TRIFOLIUM ARVENSE, *Linn.* *Stone Clover. Rabbit-foot.*

Plant somewhat silky-pubescent; stem erect, branching; leaflets spatulate-lanceolate, obtuse, longer than the petiole; stipules ovate, acuminate; heads oblong-cylindrical, very villous; teeth of the calyx setaceous, longer than the corolla, at length spreading.—*Engl. bot. t.* 944; *Michx. fl.* 2. *p.* 59; *Ell. sk.* 2. *p.* 202; *Bigel. fl. Bost. p.* 270; *DC. prodr.* 2. *p.* 190; *Hook. fl. Bor.-Am.* 1. *p.* 131; *Beck, bot. p.* 79; *Darlingt. fl. Cest. p.* 406; *Torr. & Gr. fl. N. Am.* 1. *p.* 313.

Annual. Stem 6 – 12 inches high, usually much branched, but often nearly simple. Leaflets about three-fourths of an inch long, emarginate and mucronate, entire or obscurely serrulate. Stipules with a long subulate point. Spikes from half an inch to an inch long, finally tawny, at first nearly sessile, but at length pedunculate. Corolla very small, white or pale rose-color, with a purple spot on the wings. Legume one-seeded. Seed oval.

Old sandy fields, sterile hill-sides, etc.; common. Introduced from Europe. April – November.

2. TRIFOLIUM PRATENSE, *Linn.* *Red Clover.*

Stems ascending; leaflets oval, obovate or broadly obovate, often retuse or emarginate, nearly entire; stipules broadly lanceolate, acuminate with a long subulate point; heads of flowers ovoid, dense, nearly sessile, bracteate; teeth of the calyx setaceous, lower one much longer than the others, which are equal and about half the length of the corolla. — *Pursh, fl.* 2. *p.* 478; *Engl. bot. t.* 1170; *Ell. sk.* 2. *p.* 202; *DC. prodr.* 2. *p.* 195; *Bigel. fl. Bost. p.* 271; *Hook. fl. Bor.-Am.* 1. *p.* 191; *Beck, bot. p.* 79; *Darlingt. fl. Cest. p.* 406; *Torr. & Gr. fl. N. Am.* 1. *p.* 314.

Root perennial, according to most authors; biennial, according to some. Stem from 1 to 2 feet high or more. Leaflets often marked with a whitish lunulate spot. Flowers purplish red; the petals united into a tube at the base. Legume one-seeded. Seed nearly reniform.

Meadows, cultivated fields, etc.; extensively naturalized. May – September. — The *Common Red Clover* is well known as a most valuable fodder plant; making either by itself, or mixed with true grasses, the best sort of hay. "Authors generally consider this species a

perennial; but a distinguished agriculturalist of New-England asserts positively that it is a biennial, and my own observation inclines me to the same opinion. It is certain that a very large proportion of the plants disappear after the second year; and those which apparently remain, may be only a succession of young plants from fallen seeds. I perceive also that Mr. Sinclair, in his *Hortus Gramineus*, speaks of the Red Clover as a biennial." *Darlington.*

** *Corolla persistent, never yellow, turning brownish when old: flowers in globose heads, deflexed when old: calyx not inflated after flowering.*

3. TRIFOLIUM REFLEXUM, *Linn.* *Buffalo Clover.*

Plant pubescent; stem ascending or decumbent; leaflets obovate or obovate-oblong, sometimes emarginate, crenulate-serrulate; stipules foliaceous, ovate-lanceolate; heads of flowers somewhat umbellate, dense; calyx hairy, parted nearly to the base, the teeth subulate, half as long as the corolla; vexillum broadly ovate; legume 3 – 5-seeded.— *Michx. fl.* 2. *p.* 59; *Pursh, fl.* 2. *p.* 447; *Ell. sk.* 2. *p.* 282; *DC. prodr.* 2. *p.* 201 (not of *Waldst. & Kit.*); *Hook. in bot. mag. t.* 3471; *Torr. & Gr. fl. N. Am.* 1. *p.* 315. T. Pennsylvanicum, *Willd. enum. p.* 793; *DC. l. c.*

Root annual or biennial? perennial according to Muhlenberg. Stems a foot or more in length. Head of flowers globose, an inch in diameter. Flowers distinctly pedicellate; the lower ones at length deflexed. Vexillum rose-red: wings and keel white.

Near Salina Lake, *Dr. Sartwell;* also in the neighborhood of Utica, *Miss Shelden* (*Dr. Knieskern*). Genesee Falls, *Prof. Dewey* (*Eaton*). June. A common species in the Western States.

4. TRIFOLIUM REPENS, *Linn.* *White Clover.*

Plant smooth; stems creeping, diffuse; leaflets obcordate, serrulate; stipules scarious, narrowly lanceolate; heads of flowers globose, somewhat umbellate, on long axillary peduncles; teeth of the calyx unequal; legume about 4-seeded.—*Engl. bot. t.* 1769; *Michx. fl.* 2. *p.* 59; *Pursh, fl.* 2. *p.* 477; *Ell. sk.* 2. *p.* 201; *Bigel. fl. Bost. p.* 271; *Beck, bot. p.* 80; *Darlingt. fl. Cest. p.* 407; *Torr. & Gr. fl. N. Am.* 1. *p.* 316.

Root perennial. Leaves on long slender petioles: leaflets often obovate and emarginate or nearly entire, commonly marked with a pale semilunar spot. Heads of flowers depressed-globose. Teeth of the calyx lanceolate-subulate, shorter than the tube. Corolla white, becoming purplish, and at length of a pale dirty brown.

Fields and pastures, every where. April – November. This species must be native, for it springs spontaneously from the soil, even when turned up from considerable depths, where the seeds have probably lain dormant for ages. In climates that are not too warm, it is superior to all other plants for pasturage. In the South, according to Mr. Elliott, stock of every description eat it sparingly, and apparently with reluctance. He states that it affects very sensibly the salivary glands, sometimes producing complete salivation.

**** Corolla yellow, turning brown when old, scarious and persistent: flowers in ovate heads, deflexed when old: calyx not inflated after flowering.*

5. TRIFOLIUM AGRARIUM, *Linn.* *Yellow Clover. Hop Clover.*

Stem ascending or erect, minutely pubescent; leaves on rather short petioles; leaflets cuneate-oblong or obovate-oblong, often emarginate, denticulate, all nearly sessile; stipules foliaceous, linear-lanceolate, cohering with the petiole for more than half its length; heads of flowers dense, on rather short peduncles; teeth of the calyx unequal; vexillum striate when old; legume 1-seeded.—*Pursh, fl. 2. p. 478*; *Torr. compend. p. 266*; *DC. prodr. 2. p. 205*; *Beck, bot. p. 79*; *Darlingt. fl. Cest. p. 408.*

Root annual. Stems about a foot high, usually growing in patches, branching. Leaflets nearly an inch long, smooth. Heads of flowers about half an inch in diameter, on rather short peduncles, mostly terminal. Calyx nearly smooth; the two upper teeth shorter. Corolla at first bright yellow, but of a chestnut brown when old.

Sandy soils and dry woods, in various places along the Hudson, particularly in the vicinity of Troy. Shore of Lake Ontario, near Sacket's-Harbor (*Dr. Knieskern*). *Fl.* June – August. Introduced from Europe.

12. MELILOTUS. *Tourn. inst. 406. t. 229*; *Endl. gen. 6510.* *MELILOT.*

[From the Greek, *mel*, honey, and *lotus*, a leguminous plant so called.]

Calyx 5-toothed. Corolla deciduous: vexillum free, longer than the wings: keel petals completely united, cohering with the wings, free from the stamen-tube. Style terminal, filiform. Legumes coriaceous, globose or ovoid, longer than the calyx, scarcely dehiscent, 1- or few-seeded. — Annual or perennial (odorous) herbs. Leaves pinnately trifoliolate: leaflets mostly toothed; the veins simple or forked. Stipules growing to the base of the petiole. Flowers in axillary somewhat spiked racemes, yellow or white.

1. MELILOTUS OFFICINALIS, *Willd.* *Yellow Melilot.*

Stem erect; leaflets obovate-oblong, obtuse, remotely serrate; racemes loose; teeth of the calyx unequal, as long as the tube; corolla (yellow) more than twice the length of the calyx; petals nearly equal in length; legumes ovoid, wrinkled, 2-seeded. — *Willd. enum. p. 190*; *Ell. sk. 2. p. 199*; *DC. prodr. 2. p. 186*; *Hook. fl. Bor.-Am. 1. p. 130*; *Torr. & Gr. fl. N. Am. 1. p. 320.* M. vulgaris, *Eat. man. ed. 7. p. 391.* Trifolium officinale, *α. Linn.* T. officinale, *Bigel. fl. Bost. p. 272*; *Engl. bot. t. 1340.*

Root annual. Stem 2 – 4 feet high, smooth, with spreading branches. Leaflets about an inch long, sharply serrate. Racemes 2 – 3 inches or more in length; the flowers retrorsely imbricated, about 3 lines long. Style long and tapering. Legume about 2 lines long, gibbous.

Banks of rivers; common along the Mohawk; rather rare in other parts of the State, and not found to my knowledge below Hudson. *Fl.* June – August. Introduced from Europe.

The plant, when dry, has an agreeable odor, much like that of the Sweet-scented Vernal-grass (*Anthoxanthum odoratum*). It is said to be the chief ingredient used for flavoring the *Gruyère cheese.*

2. MELILOTUS LEUCANTHA, *Koch.* *White Melilot.*

Stem erect; leaflets ovate-oblong, truncate at the apex, mucronate, remotely serrate; racemes loose; teeth of the calyx unequal, as long as the tube; corolla (white) more than twice the length of the calyx, the keel and wings shorter than the vexillum; legumes ovoid, wrinkled, 2-seeded. — *DC. prodr.* 2. *p.* 186; *Hook. in Engl. bot. suppl. t.* 2689; *Torr. & Gr. fl. N. Am.* 1. *p.* 321. M. vulgaris, *Willd. enum.* 1. *p.* 190. M. officinalis, *Pursh, fl.* 2. *p.* 477. M. officinalis, *β.* alba, *Nutt. gen.* 2. *p.* 104. M. alba, *Thuil.*; *Eat. l. c.* Trifolium officinale, *β. Linn.*

Root biennial (*DC.*). Stem 3 – 6 feet high, branching. Leaflets about an inch long, sharply serrate. Flowers smaller than in the preceding species. Legumes strongly wrinkled, often one-seeded. Seeds ovoid.

With *M. officinalis*, and flowering at the same time. It is a stouter plant, and easily distinguished by its yellow and smaller flower. Both are sweet-scented when dry.

13. MEDICAGO. *Linn.; Endl. gen.* 6507. *MEDICK.*

[A name applied by the Greeks to one of the species of this genus, introduced into their country by the *Medes.*]

Calyx somewhat cylindrical, 5-cleft. Keel of the corolla remote from the vexillum. Style smooth. Legume usually many-seeded, of various forms, falcate or spirally coiled. — Herbaceous, or rarely shrubby plants. Leaves pinnately trifoliolate. Stipules often incised, growing to the petiole. Peduncles axillary, 1 – 2- or several-flowered. Flowers mostly yellow, sometimes purple or violet.

1. MEDICAGO SATIVA, *Linn.* *Lucerne. Spanish Trefoil.*

Stem erect, smooth; leaflets obovate-oblong, toothed above, mucronate; flowers in oblong racemes; legumes spirally twisted, finely reticulated. — *DC. prodr.* 2. *p.* 173; *Engl. bot. t.* 1479; *Darlingt. fl. Cest. p.* 405; *Torr. & Gr. fl. N. Am.* 1. *p.* 321.

Root perennial. Stem 1 – 2 feet high, erect or oblique. Leaflets about an inch long, pubescent underneath, the terminal one remote. Racemes on peduncles 6 – 10 lines long. Flowers pedicellate, violet-purple.

Fields and cultivated grounds; scarcely naturalized. A native of Europe. June – July. This species is much cultivated in the south of Europe as an herbage plant, and was once in

great repute in England and the United States; and though now generally neglected, it is a favorite with some intelligent agriculturalists. The late Jesse Buel, Esq. of Albany, cultivated it with great success. Its average duration is ten or twelve years.

2. MEDICAGO LUPULINA, *Linn.* *Black Medick*, or *Nonesuch.*

Stem procumbent; leaflets obovate-cuneate, toothed at the apex; stipules nearly entire; flowers in capitate spikes, legumes reniform, one-seeded.— *Engl. bot. t.* 971; *Michx. fl.* 2. *p.* 60; *Ell. sk.* 2. *p.* 247; *DC. prodr.* 2. *p.* 172; *Bigel. fl. Bost. p.* 278; *Beck, bot. p.* 78; *Darlingt. fl. Cest. p.* 405; *Torr. & Gr. fl. N. Am.* 1. *p.* 322.

Root annual. Stems 6 – 12 inches long, several spreading from the same root, pubescent. Leaflets about half an inch long, often broadly obovate, or nearly orbicular. Peduncles usually longer than the leaves. Heads of flowers at first roundish, about one-fourth of an inch in diameter, at length oblong. Corolla pale yellow. Legumes black when ripe, reticulated with elevated curved lines.

Fields and cultivated grounds, road-sides, etc.; common. June – August. Introduced from Europe.

Several other species of this genus are occasionally found in the neighborhood of cloth factories, having been introduced in foreign wool; but they can hardly be considered as yet naturalized.

TRIBE V. *ASTRAGALEÆ. Adans.*

Corolla papilionaceous. Stamen diadelphous (9 & 1). *Legumes continuous, turgid or inflated* (*rarely flattened*), *often spuriously 2-celled by the introflexion of one of the sutures, dehiscent, mostly several-seeded. Cotyledons foliaceous in germination: radicle incurved.* — *Herbaceous* (*all the North American species*), *or rarely somewhat shrubby. Leaves unequally pinnate* (*very rarely palmately trifoliolate*), *without stipelles. Inflorescence axillary or radical, racemose or spiked.*

14. ASTRAGALUS. *Linn.* (partly); *Endl. gen.* 6573. *MILK VETCH.*

[A name given by the Greeks to a leguminous plant supposed to be of this genus.]

Calyx 5-toothed. Keel obtuse. Legume longitudinally more or less perfectly 2-celled by the introflexion of the lower (dorsal) suture.— Herbaceous, more or less canescent plants; the hairs often fixed by the middle. Leaflets numerous. Stipules often adhering to the base of the petiole. Flowers in spikes or racemes.

1. ASTRAGALUS CANADENSIS, *Linn.* (Plate XXV.) *Canadian Milk Vetch.*

Tall and erect, canescent; stipules broadly lanceolate, acuminate, not cohering with the petiole, nor with each other; leaflets usually 10 (rarely 12 – 14) pairs, elliptical or oblong,

obtuse ; peduncles about as long as the leaves ; spikes oblong or elongated ; bracts subulate, nearly as long as the calyx ; flowers (ochroleucous) spreading and partly reflexed ; legumes ovate-oblong, terete, erect, coriaceous, smooth, 2-celled, many-seeded ; the upper suture prominent and acute. — *Willd. sp.* 3. *p.* 1274 ; "*Dodar. mem. t.* 64 ;" *Pursh, fl.* 2. *p.* 472 ; *Ell. sk.* 2. *p.* 227 ; *DC. prodr.* 2. *p.* 93 ; *Hook. fl. Bor.-Am.* 1. *p.* 152 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 33. A. Carolinianus, *Linn.* ; *Michx. fl.* 2. *p.* 66 ; *Pursh, l. c.* ; *Ell. l. c.* ; *DC. l. c.*

Root perennial. Stem 1 – 3 feet high, robust, with somewhat erect branches. Leaflets from three-fourths of an inch to an inch and a half long, nearly smooth above, pubescent underneath ; the hairs fixed by the middle. Spikes erect, at first ovate and only about an inch long, finally cylindrical and 2 – 4 inches or more in length. Flowers three-fourths of an inch long, yellowish-white. Teeth of the calyx scarcely one-fourth the length of the tube. Legumes sessile, 5 – 6 lines long and 2 – 3 lines in diameter, abruptly pointed with the remains of the style, forming a compact head or spike, perfectly 2-celled. Seeds 10 – 15, reniform, compressed, light brown.

Banks of rivers and lakes ; chiefly in the northern and western counties ; not found below Hudson. *Fl.* June – August. — No other *Astragalus* has hitherto been found within the limits of New-York. Forty other species are natives of North America, chiefly in the regions west of the Mississippi and in British America.

15. PHACA. *Linn.* ; *Endl. gen.* 6571. *BASTARD VETCH.*

[From *phake* or *phakos*, the Greek name for lentil.]

Calyx 5-toothed or 5-cleft ; the 2 upper teeth often a little remote from each other. Keel obtuse. Legume mostly turgid or inflated, one-celled, the upper (placental) suture somewhat tumid.—Mostly perennial herbs, with axillary pedunculate racemes. Legumes, when mature, often resupinate by the twisting of the pedicels.

1. PHACA NEGLECTA, *Torr. & Gr.* (Plate XXVI.) *Bastard Vetch.*

Plant nearly smooth ; stem erect, branching ; leaflets 6 – 10 pairs, elliptical, often emarginate, smooth above, pubescent with appressed hairs underneath ; stipules triangular-ovate ; peduncles about the length of the leaves ; spikes oblong, many-flowered ; calyx campanulate, pubescent with blackish hairs, the subulate teeth much shorter than the tube ; legume sessile, globose-ovoid, pointed, coriaceo-membranaceous, flattened on the upper side, and deeply grooved by the introflexion of the ventral suture. — *Torr. & Gr. fl. N. Am.* 1. *p.* 344.

Root perennial. Stem 1 – 2 feet high, rather slender, terete, sparingly branched. Leaflets about three-fourths of an inch long and one-fourth of an inch wide, each with short partial petioles. Hairs of the pubescence fixed by the middle. Stipules 2 – 3 lines long. Peduncles somewhat spreading, slender. Spikes 15 – 25-flowered ; the flowers about as large as in *Astragalus Canadensis*, white. Legumes three-fourths of an inch long and half an inch in

diameter; the dorsal suture slightly, the placental suture rather deeply introflexed, so that the fruit is imperfectly 2-celled. Seeds numerous, small.

Gravelly banks of rivers and lakes; also in sandy woods. Western part of the State, from the Onondaga Lake to the Falls of Niagara. *Fl.* June – July. *Fr.* August. This plant, which is by no means rare in our State, and which occurs also in Ohio and Wisconsin, was discovered about twenty-five years ago by William Cooper, Esq., but was never described till lately. In flower it strongly resembles *Astragalus Canadensis*, but can be known by its shorter and looser spikes, white corolla, and by the nearly campanulate, not tubular calyx. In fruit they are easily distinguished.

TRIBE VI. *HEDYSAREÆ. DC.*

Corolla papilionaceous. Stamens either monadelphous or diadelphous (9 & 1, *or* 5 & 5). *Legume* (*loment*) *transversely divided into several indehiscent one-seeded joints, occasionally reduced to a single one-seeded cell. Embryo mostly with foliaceous cotyledons: radicle incurved, rarely almost straight. — Herbs or shrubs. Leaves abruptly or unequally pinnate, or pinnately* 2 – 3*-foliolate, rarely palmately* 2 – 5*-foliolate, occasionally reduced to a single leaflet, often stipellate.*

16. STYLOSANTHES. *Swartz; Torr. & Gr. fl. N. Am.* 1. *p.* 354; *Endl. gen.* 6606.

PENCIL-FLOWER.

[From the Greek, *stylos*, a column, and *anthos*, a flower; the long narrow calyx-tube appearing to support the flower.]

Flowers of two kinds intermixed; the one kind complete, but sterile; the other destitute of calyx and corolla, and fertile. STERILE FL. Calyx somewhat bilabiate, with 2 bracteoles at the base; the tube long and slender: upper lip 2-cleft; lower lip 3-cleft. Corolla inserted in the throat of the calyx: vexillum broad: keel cymbiform, small. Stamens monadelphous: anthers alternately linear and ovate. Ovary sessile, with 2 – 3 ovules, always sterile: style filiform, very long: stigma capitate, minute, smooth. FERTILE FL. consisting of a sessile ovary between 2 bracteoles. Stamens none. Style short and recurved. Legume 1 – 2-jointed; the upper joint ovoid, acuminate and uncinate with the persistent style; the lower joint often abortive, and resembling a stipe. Seeds ovate. Cotyledons thick. Embryo curved or nearly straight. — Small herbaceous or suffruticose plants. Leaves pinnately trifoliolate. Stipules adnate to the petiole, and sheathing. Spikes few-flowered, terminal, imbricated with stipules and hispidly ciliate bracts.

1. STYLOSANTHES ELATIOR, *Swartz.* (Plate XXVII.) *Pencil-flower.*

Stem herbaceous, erect or procumbent, pubescent on one side; leaflets lanceolate, smooth; spikes few-flowered; bracts lanceolate, and, as well as the uppermost leaflets, spinulose-

ciliate; legume 2-jointed, the lower joint sterile and stipe-like.— *Swartz in act. Holm.* 1789, *t.* 11. *f.* 2, ex *DC. prodr.* 2. *p.* 318; *Willd. sp.* 3. *p.* 1167; *Nutt. gen.* 2. *p.* 106; *Ell. sk.* 2. *p.* 203; *Beck, bot. p.* 83; *Darlingt. fl. Cest. p.* 411; *Torr. & Gr. fl. N. Am.* 1. *p.* 354. S. hispida, *Michx. fl.* 2. *p.* 75, not of *Richard.* Arachis aprica, *Walt. fl. Car. p.* 182. Trifolium biflorum, *Linn.*

Root perennial. Stem 6 – 12 inches long, somewhat cespitose, slender and wiry, sparingly branched at the summit. Leaves on short petioles. Leaflets about an inch long, acute at each end, prominently veined underneath; those of the lower leaves sparingly ciliate towards the summit. Stipules cohering (except their long subulate points) with the petiole, and also with each other on the opposite side of the stem, forming a close cylindrical sheath (like the *ochreæ* of POLYGONUM); those on the lower part of the stem often naked (from the abortion of the leaflets, or their falling off with the growth of the plant). Spikes 3 – 6-flowered; the flowers subtended by leafy bracts, and each with a pair of lanceolate-ciliate bracteoles at the base; one or more of the flowers fertile, but destitute of calyx, corolla and stamens. Ovary of the fertile flower attenuated at the base, 2-ovuled; in maturity, forming a small, obovate, 2-jointed, coriaceous legume, the lower joint of which is constantly abortive, furnishing a short thick stipe. Seed solitary: radicle very short, either nearly straight or slightly curved. Sterile flowers 4 – 5 lines in diameter, seldom more than two in each spike. Calyx-tube slender and resembling a pedicel, concealed by the sheathing bases of the bracts. Corolla orange-yellow: vexillum twice as long as the other petals, retuse: wings obovate: keel cymbiform, entire at the apex. Ovary linear-oblong, enclosed in the base of the calyx-tube, and falling off with it, apparently always abortive: style long and thread-like.

Sandy woods, and dry gravelly hills. Suffolk county, Long Island; and Manhattanville, on the Island of New-York. *Fl.* Latter part of July – September. *Fr.* September – October.

17. DESMODIUM. *DC. mem. Leg., & prodr.* 2. *p.* 325; *Endl. gen.* 6615. *DESMODIUM.*

Species of HEDYSARUM, *Linn.*

[From the Greek, *desmos*, a chain; the jointed fruit having some resemblance to that article.]

Calyx with two bracteoles at the base, usually more or less 2-lipped (rarely almost entire); upper lip 2-cleft or 2-toothed, often entire; the lower 3-parted or 3-toothed. Corolla inserted into the base of the calyx: vexillum roundish: keel obtuse, but not truncate. Stamens diadelphous (9 & 1), or monadelphous from the base to the middle and free above, rarely wholly monadelphous. Legume (loment) compressed, composed of several one-seeded joints, which at length separate. — Herbaceous (all the North American species) or suffrutescent plants. Leaves pinnately trifoliolate: leaflets stipellate. Flowers in axillary or terminal (often paniculate) loose racemes, small, purplish, often turning green in withering. Joints of the pod (in the North American species) reticulated, and more or less hispid with short hooked hairs.

§ 1. *Stamens wholly or partly monadelphous: calyx toothed or nearly entire: legume stipitate.*

1. DESMODIUM NUDIFLORUM, *DC.* *Naked-flowered Desmodium.*

Stem erect, simple, leafy at the summit; leaflets broadly ovate; raceme much longer than the stem, proceeding from its base, scape-like, usually naked; stamens perfectly monadelphous; calyx broadly campanulate, upper lip entire, the lower slightly 3-toothed; legumes on a very long stipe, straight on the back, of 2 – 4 obtusely triangular joints.—*DC. prodr.* 2. *p.* 330; *Hook. fl. Bor.-Am.* 1. *p.* 154; *Beck, bot. p.* 85; *Darlingt. fl. Cest. p.* 418; *Torr. & Gr. fl. N. Am.* 1. *p.* 358. Hedysarum nudiflorum, *Linn.; Michx. fl.* 2. *p.* 71; *Pursh, fl.* 2. *p.* 483; *Ell. sk.* 2. *p.* 209; *Bigel. fl. Bost. p.* 275.

Stem 6 – 12 inches high, pubescent. Leaflets 2 – 3 inches long, a little glaucous underneath, slightly acuminate, the margin finely ciliate. Stipules subulate, caducous. Scape arising from near the root, $1\frac{1}{2}$ – 3 feet high, curved at the base, and then ascending some distance from the leafy stem; not unfrequently furnished with one or more small trifoliolate leaves. Panicle racemose; the flowers on slender pedicels 5 – 10 lines in length, which are sometimes in pairs. Calyx a little pubescent, the border at length spreading; lowest tooth small, acute; the other teeth obscure or obsolete. Corolla bright purple; the keel pale: vexillum with two dark spots near the base. Legume mostly 2 – 3-jointed, slightly pubescent; lower angle of the joints rounded: stipe slender, nearly an inch long.

Dry woods; common. July – August.

2. DESMODIUM ACUMINATUM, *DC.* *Pointed-leaved Desmodium.*

Stem erect, simple, leafy at the summit; leaves on very long petioles; leaflets conspicuously acuminate, broadly ovate or roundish; panicle terminal, on a long naked peduncle; calyx campanulate; upper lip obtuse, slightly emarginate; lower lip 3-lobed; stamens monadelphous below the middle; joints of the legume 2 – 3, semioval.—*DC. prodr.* 2. *p* 329; *Hook. fl. Bor.-Am.* 1. *p* 154; *Beck, bot. p.* 85; *Darlingt. fl. Cest. p.* 417; *Torr. & Gr. fl. N. Am.* 1. *p.* 358. Hedysarum acuminatum, *Linn.; Michx. fl.* 1. *p.* 72; *Pursh, fl.* 2. *p.* 48; *Ell. sk.* 2. *p.* 209; *Bigel. fl. Bost. p.* 275. H. glutinosum, *Willd. sp.* 3. *p.* 1198.

Stem about a foot high, nearly smooth, or sprinkled with soft hairs. Leaflets 2 – 4 inches long, thin and membranaceous: petioles 2 – 6 inches long. Stipules subulate, hairy. Flowers in a long racemose slender panicle; the peduncle a foot or more in length; pedicels 2 – 4 lines long. Flowers pale purple, not turning green in decay. Teeth of the calyx much deeper than in the preceding species. Legume with large joints; the stipe about as long as the pedicel.

Fertile woods; common. July.

§ 2. *Stamens diadelphous (the tenth stamen sometimes connected with the others near the base); calyx 2-lipped, cleft below the middle; legume subsessile.*

3. DESMODIUM CANADENSE, *DC.* *Canadian Desmodium.*

Stem erect, hairy, striate; leaflets oblong-lanceolate, very much longer than the petioles; stipules lanceolate, rather persistent; racemes terminal, and in the axils of the uppermost leaves; bracts ovate-lanceolate, acuminate; calyx deeply bilabiate; upper lip oblong, 2-cleft at the point, the lower 3-parted, with lanceolate segments; joints of the legume semiovate-triangular, truncate at both ends, hispid.—*DC. prodr.* 2. *p.* 328; *Hook. fl. Bor.-Am.* 1. *p.* 154; *Beck, bot. p.* 83; *Torr. & Gr. fl. N. Am.* 1. *p.* 359. Hedysarum Canadense, *Linn.; Willd. sp.* 3. *p.* 1187; *Torr. compend. p.* 267; *Bigel. fl. Bost. p.* 275.

Stem 3 – 6 feet high, often branched. Leaves on comparatively short petioles (about half an inch long): leaflets 2 – 3 inches long, tapering to the summit but rather obtuse, strigosely pubescent underneath, nearly smooth above. Racemes numerous, erect, forming a terminal panicle. Bracts imbricated, of a reddish brown color, very conspicuous before the flowers are expanded. Flowers rather pale violet-blue. Stamens diadelphous about half their length. Legume an inch long, very hispid: joints 3 – 4 (sometimes 5), about two lines in diameter, a little convex on the upper side, rounded and somewhat angular below.

Borders of woods, and rather moist copses; not rare. August – September. This species can be distinguished by its tall stem, and large, rather close panicle of flowers, the bracts of which are very conspicuous in the bud.

4. DESMODIUM CANESCENS, *DC.* *Hoary Desmodium.*

Stem erect, branching, clothed with horizontal hairs, and somewhat scabrous; leaflets ovate, rather acute, scabrous-pubescent on both sides, reticulated underneath; petiole as long as the leaflets; stipules large, obliquely ovate, acuminate; upper lip of the calyx entire or slightly bifid, the lower tooth lanceolate and longest; legume of 4 – 6 oblong-triangular strongly hispid joints.—*DC. prodr.* 2. *p.* 328; *Beck, bot. p.* 84; *Darlingt. fl. Cest. p.* 415; *Torr. & Gr. fl. N. Am.* 1. *p.* 359. D. viridiflorum, *DC. l. c.* D. Aikinianum, *Beck, l. c.* Hedysarum canescens, *Linn. hort. Cliff.* (not of *Willd.*); *Pursh, fl.* 2. *p.* 482. H. viridiflorum, *Willd. sp.* 3. *p.* 1192 (not of *Linn.*); *Michx. fl.* 2. *p.* 71; *Pursh, l. c.* H. Aikini, *Eat. man. ed.* 7. *p.* 166.

Stem 3 – 5 feet high, more or less hairy; the hairs partly long and spreading horizontally, and partly very short and hooked. Leaflets 2 – 4 inches long, thin; the pubescence like that of the stem, of two kinds, the longer hairs stiff and appressed, the shorter ones uncinate, so that the leaves adhere pretty strongly to cloth and rough paper. Stipules nearly half an inch long, persistent, scarious. Racemes forming a loose terminal panicle: pedicels 4 – 8 lines long. Corolla violet-purple, becoming green in withering. Legume 1½ – 2 inches long, on a very short stipe: joints one-third of an inch long, truncate at both ends.

Moist rich soils: common in the interior of the State, particularly in the western and south-western counties; also on the islands near Troy. August.

5. DESMODIUM DILLENII, *Darlingt.* *Dillenius's Desmodium.*

Stem erect, branching, pubescent; leaflets oblong or ovate-oblong, somewhat villous and glaucous underneath; stipules subulate; racemes slender, forming a loose terminal panicle; bracts ovate-lanceolate; upper lip of the calyx entire or slightly emarginate; lower tooth twice as long as the lateral ones; legumes of 3 – 4 rhomboid reticulated hispid joints. — *Darlingt. fl. Cest. p.* 414; *Torr. & Gr. fl. N. Am.* 1. *p.* 360. D. Marilandicum, *DC. prodr.* 1. *p.* 238, excl. syn. *Linn.*; *Beck, bot. p.* 84. D. Boottii, *Torr. in Curt. cat. Wilmingt. pl.* Hedysarum Marilandicum, *Willd. sp.* 3. *p.* 1189 (not of *Linn.*); *Pursh, fl.* 2. *p.* 482; *Ell. sk.* 2. *p.* 214.

Stem about 3 feet high, sulcate, clothed with soft pubescence. Leaflets 1½ – 3 inches long, thin, sometimes acute, but commonly more or less obtuse; the hairs on the under surface appressed, not rough to the touch. Common petiole often nearly or quite as long as the leaflets. Stipules small and deciduous. Panicle large and slender. Flowers smaller than in most of the preceding species. Lower tooth of the calyx twice as long as the lateral teeth. Corolla purple, changing to bluish green. Stamens diadelphous nearly to the base. Legume about an inch long, on a stipe a little longer than the calyx; the joints distinctly rhomboid, connected by a narrow isthmus, smaller than in the preceding species.

Dry fertile open woods, and in thickets; rather common. August.

Resembles *D. canescens*, but distinguished by its smoother leaves (which do not adhere to paper), narrow stipules, and less numerous rhombic joints of the legumes.

6. DESMODIUM CUSPIDATUM, *Torr. & Gr.* *Large-bracted Desmodium.*

Stem erect, smooth; leaflets ovate or lanceolate-ovate, acuminate, smooth; stipules lanceolate, acuminate; panicle elongated, sparingly branched; bracts (conspicuous) ovate, cuspidate, striate; lower tooth of the calyx much longer than the triangular teeth; stamens perfectly diadelphous; legumes of 4 – 6 triangular-oblong sparingly hispid joints.—*Torr. & Gr. fl. N. Am.* 1. *p.* 360. D. bracteosum, *DC. prodr.* 2. *p.* 329; *Beck, bot. p.* 85; *Darlingt. fl. Cest. p.* 416. Hedysarum cuspidatum, *Muhl. in Willd. sp.* 3. *p.* 1188; *Pursh, fl.* 2. *p.* 482; *Bigel. fl. Bost. p.* 276; *Torr. compend. p.* 269. H. bracteosum, *Michx. fl.* 2. *p.* 73; *Pursh, fl.* 2. *p.* 483; *Ell. sk.* 2. *p.* 213.

Stem 3 – 5 feet high, nearly simple. Leaflets 2 – 5 inches long, much paler underneath, almost perfectly smooth on both surfaces: stipelles subulate, conspicuous; stipules persistent, half an inch or more in length, with a long subulate point. Flowers in a large open panicle, the branches of which are only slightly rough. Flowers often sterile, violet-purple. Legume often two inches in length, nearly sessile; the joints a little rounded on the back.

Banks of rivers, and rocky open woods. August.

7. DESMODIUM VIRIDIFLORUM, *Beck.* *Velvet-leaved Desmodium.*

Stem erect, densely pubescent, a little rough towards the summit; leaflets ovate, mostly obtuse, rough above, velvety tomentose underneath; stipules ovate-lanceolate, acuminate, rather persistent; panicle elongated, naked; upper lip of the calyx slightly bifid; legume of 3 – 4 roundish-triangular very hispid joints. — *Beck, bot. p.* 83; *Darlingt. fl. Cest. p.* 415, (not of *DC.*); *Torr. & Gr. fl. N. Am.* 1. *p.* 360. Hedysarum viridiflorum, *Linn. sp.* 1055; *Ell. sk.* 2. *p.* 217 (not of *Willd.*).

Stem 3 – 4 feet high, rather stout, paniculately branched. Leaflets 2 – 3 inches long, of a thick and firm texture; the under surface usually clothed with a very dense soft pubescence, but sometimes rather hairy than velvety: common petiole about one-fourth the length of the leaflets. Panicle with few rather short branches. Bracts very small, shorter than the flower-buds. Lowest tooth of the calyx elongated. Corolla violet-purple, turning greenish soon after it is fully expanded. Legume about three-fourths of an inch long; the joints convex above, rounded and very obtusely angular below.

Sandy copse on the borders of a small wood about half a mile from the South Ferry, Brooklyn, Long Island; also borders of Harlem river from Manhattanville to Kingsbridge, on the Island of New-York. Latter part of July – September.

8. DESMODIUM MARILANDICUM, *Boott.* *Smooth Small-leaved Desmodium.*

Stem erect, simple, slender, nearly smooth; leaflets (small) ovate, very obtuse, often slightly cordate, thin; petiole as long as the lateral leaflets, smooth; stipules lanceolate-subulate, caducous; panicle elongated; bracts lanceolate-ovate, very small; pedicels 2 – 3 times as long as the flower; legume with 2 – 3 hispid, somewhat semiorbicular joints. — *Darlingt. fl. Cest. p.* 412; *Torr. & Gr. fl. N. Am.* 1. *p.* 362. D. obtusum, *DC. prodr.* 2. *p.* 329; *Beck, bot. p.* 84. Hedysarum Marilandicum, *Linn. sp.* 2. *p.* 748 (excl. syn. *Dill.*), not of *Willd., Muhl., &c.* H. obtusum, *Willd. sp.* 3. *p.* 1190?; *Pursh, fl.* 2. *p.* 482; *Nutt. gen.* 2. *p.* 109; *Ell. sk.* 2. *p.* 212.

Stem 2 – 3 feet high, smooth, except near the summit, which is often a little rough. Leaves about three-fourths of an inch in length, the lower ones broader and often nearly round; petioles slender. Stipules usually falling very early. Pedicels filiform, 5 – 8 lines long. Flowers small, violet-purple, becoming greenish in withering. Calyx smooth; upper lip nearly entire, shorter than the others: lower tooth lanceolate, nearly twice as long as the obtuse-triangular lateral ones. Legume half an inch long, sometimes reduced to a single joint, which is then larger than usual, nearly sessile in the calyx.

Dry hill-sides, sandy fields and borders of woods; rather common. August.

9. DESMODIUM CILIARE, *DC.* *Hairy Small-leaved Desmodium.*

Stem erect, mostly simple, rather slender, hairy; leaves crowded, on short hairy petioles; leaflets (small) ovate or oval, obtuse, rather coriaceous, pubescent and somewhat ciliate; stipules subulate-linear, rather persistent; lower branches of the panicle mostly elongated; pedicels little longer than the flowers; legumes with 2 – 3 semiorbicular or obliquely roundish-obovate hispid joints.— *DC. prodr.* 2. *p.* 330; *Beck, bot. p.* 84; *Darlingt. fl. Cest. p.* 413; *Torr. & Gr. fl. N. Am.* 1. *p.* 362. Hedysarum ciliare, *Willd. sp.* 3. *p.* 1190; *Pursh, fl.* 2. *p.* 482; *Nutt. gen.* 2. *p.* 109; *Ell. sk.* 2. *p.* 212; *Torr. compend. p.* 268.

Stems 2 – 3 feet high, commonly several from one root, more or less hairy. Leaflets about three-fourths of an inch long, and half an inch or more in breadth. Petioles of the upper leaves very short; those of the lower ones a little longer. Panicle scabrous with short hooked hairs. Calyx hairy; the upper lip notched: lower tooth lanceolate, one-third longer than the 2 oblong, obtuse lateral ones. Corolla and fruit as in the preceding species.

Sandy fields, hill-sides and copses. August – September. Very near *D. Marilandicum*, and best distinguished by its hairy stem and leaves, short hairy petioles and pedicels.

10. DESMODIUM RIGIDUM, *DC.* *Rigid Desmodium.*

Stem erect, branching, clothed with a rough pubescence; leaflets ovate-oblong, obtuse, ciliate, rough above, hairy underneath, the lateral ones smaller, much longer than the hairy petiole; stipules ovate-lanceolate, acuminate, ciliate, caducous; racemes paniculate, erect, very long; pedicels a little longer than the flowers; legumes with 2 or 3 semiobovate or obliquely ovate hispid joints. — *DC. prodr.* 2. *p.* 330; *Darlingt. fl. Cest. p.* 413; *Torr. & Gr. fl.* 1. *p.* 362. Hedysarum rigidum, *Ell. sk.* 2. *p.* 315.

Stem 2 – 3 feet high, paniculate-branched and somewhat rigid, striate; the pubescence consisting of short hooked hairs. Leaflets 1 – 3 inches long, rather coriaceous; the veins strongly reticulated and elevated. Petiole varying in length from 3 to 8 lines. Flowers small; the pedicels rather thick. Calyx pubescent; segments of the calyx rather acute, lowest one longest. Stamens diadelphous nearly to the base. Legume nearly sessile, 5 – 8 lines long.

Dry hill-sides and borders of woods in sandy soil; Island of New-York, Staten Island, and Long Island. August. This species sometimes has the leaves smaller and broader, when it is not easy to distinguish it from *D. ciliare*.

11. DESMODIUM PANICULATUM, *DC.* *Panicled Desmodium.*

Whole plant nearly smooth; stem erect, slender; petioles about one-third the length of the oblong-lanceolate, rather obtuse leaflets; stipules subulate, deciduous; racemes forming a large spreading panicle; pedicels rather longer than the flower, slender; legume straight,

slightly hispid; legume of 3 – 5 triangular-rhomboid joints. — *DC. prodr.* 2. *p.* 329; *Beck, bot. p.* 85; *Darlingt. fl. Cest. p.* 411; *Torr. & Gr. fl. N. Am.* 1. *p.* 363. Hedysarum paniculatum, *Linn. sp.* 2. *p.* 748; *Pursh, fl.* 2. *p.* 483; *Ell. sk.* 2. *p.* 210; *Bigel. fl. Bost. p.* 276; *Torr. compend. p.* 269.

Stems 2 – 3 feet high, often clustered. Leaflets 1 – 3 inches long, often lanceolate, and the lower ones sometimes oval-oblong, rather thin, bright green, and often a little shining above: common petiole from half an inch to an inch in length. Panicle loose, widely spreading; the flowers small, purple. Calyx pubescent; upper lip emarginate; lower tooth much the longest. Legume about three-fourths of an inch long, raised on a short stipe; the joints considerably larger than in the preceding species, distinctly angled on the back.

Dry woods, copses and hill-sides; very common. August.

12. DESMODIUM ROTUNDIFOLIUM, *DC.* *Round-leaved Desmodium.*

Stem prostrate, hairy; leaflets orbicular, pubescent; stipules (large) broadly ovate, acuminate, reflexed, persistent; racemes axillary and terminal; calyx deeply and somewhat equally 4-cleft, the upper segment 2-toothed; legumes almost equally sinuate on both edges, of 3 – 6 rhomboid-oval joints. — *DC. prodr.* 2. *p.* 330; *Beck, bot. p.* 85; *Darlingt. fl. Cest. p.* 418; *Torr. & Gr. fl. N. Am.* 1. *p.* 364. Hedysarum rotundifolium, *Michx. fl.* 2. *p.* 72; *Pursh, fl.* 2. *p.* 484; *Ell. sk.* 2. *p.* 213; *Bigel. fl. Bost. p.* 274.

Stem a little branching, 2 – 4 feet long, striate, clothed with brownish spreading or retrorse hairs. Leaflets 1 – 2 inches in diameter, thin, strigosely hairy on both sides; terminal one obtusely cuneate at the base. Petiole 1 – 1½ inch long. Racemes few-flowered, pedunculate: pedicels slender, about half an inch long; the terminal ones often panicled. Calyx smoothish, except the lower lip, which is hairy: segments narrow, acute. Corolla violet-purple. Legume about an inch in length, on a stipe longer than the calyx, commonly 4 – 5-jointed, very hispid.

Dry open woods, and on rocky hill-sides. August.

18. LESPEDEZA. *Michx. fl.* 2. *p.* 70. *t.* 39 & 40; *Endl. gen.* 6623. *LESPEDEZA.*

[Dedicated to LESPEDEZ, a Spanish governor of Florida, who assisted Michaux in his exploration of that country.]

Calyx with 2 persistent bracteoles at the base, deeply 5-cleft. Corolla inserted into the base of the calyx: vexillum roundish or oblong: wings nearly straight, as long as the very obtuse keel. Stamens diadelphous (9 & 1): anthers uniform. Style filiform in the petaliferous flowers; short and hooked in the apetalous. Legume lenticular, mostly flat, reticulated, unarmed, indehiscent, one-seeded, usually clothed with short hairs.—Perennial herbs or suffrutescent plants, with pinnately trifoliolate reticulate leaves. Stipules minute, subu-

late or setaceous: stipelles none. Flowers in axillary pedunculate spikes or racemes, and often with other apetalous and imperfect but fertile ones, mostly in subsessile glomerules. *Torr. & Gr.*

§ 1. EULESPEDEZA, Torr. & Gr. *Flowers of two kinds: complete, but seldom perfecting fruit, in loose few-flowered racemes with purple or violet petals; and fertile, but mostly destitute of petals and stamens; the latter often in separate, nearly sessile glomerules.*

1. LESPEDEZA PROCUMBENS, *Michx.* *Trailing Lespedeza.*

Whole plant woolly-pubescent, except the upper surface of the leaves, procumbent, with the branches assurgent; leaflets oval, obovate or elliptical, mostly retuse; peduncles axillary, elongated, few-flowered, sometimes paniculate at the extremity of the branches; apetalous flowers occupying the lower peduncles, and also often the axils of the lower leaves; legumes nearly orbicular.—*Michx. fl.* 2. *p.* 70. *t.* 39; *Nutt. gen.* 2. *p.* 108; *Ell. sk.* 2. *p.* 408; *DC. prodr.* 2. *p.* 350; *Torr. compend. p.* 267; *Beck, bot. p.* 88; *Darlingt. fl. Cest. p.* 422; *Torr. & Gr. fl. N. Am.* 1. *p.* 366. Hedysarum repens, *Willd. sp.* 3. *p.* 1200.

Stems numerous, much branched, slender, 2 – 3 feet long, clothed with a dense whitish spreading pubescence. Leaflets about half an inch long. Common petioles very short in the upper leaves; in the lower, 3 – 6 lines long. Calyx slightly 2-lipped, shorter than the corolla (as in all the species of this section); the 2 upper segments often united at the base, hairy. Flowers handsome purple tinged with violet. Apetalous flowers sometimes mixed with the others; the calyx small. Legume more than twice as long as the calyx.

Sandy fields, dry woods and hill-sides. August. Common in the valley of the Hudson, and on Long Island; rare in the interior of the State.

2. LESPEDEZA REPENS, *Torr. & Gr.* *Slender Lespedeza.*

Plant minutely pubescent with appressed hairs, or nearly smooth, diffusely procumbent; leaflets oval or obovate-elliptical, the uppermost ones emarginate; petioles mostly very short; peduncles axillary, elongated, few-flowered, the lower ones (sometimes short) bearing apetalous flowers; legumes nearly orbicular. — *Torr. & Gr. fl. N. Am.* 1. *p.* 367; *Bart. fl. Phil.* 2. *p.* 77? L. prostrata, *Pursh, fl.* 2. *p.* 481; *Nutt. gen.* 2. *p.* 108; *DC. prodr.* 2. *p.* 350; *Hook. fl. Bor.-Am.* 1. *p.* 156; *Beck, bot. p.* 88. Hedysarum repens, *Linn. sp.* (*ed.* 1.) 2. *p.* 749. H. prostratum, *Willd. sp.* 3. *p.* 1200.

Stems 2 feet or more in length, very slender. Flowers rather smaller, but in other respects as well as in the fruit, resembling those of the preceding species.

Sandy fields, Long Island. August.

3. LESPEDEZA VIOLACEA, *Pers.* *Bush Clover.*

Stem erect or diffuse; leaflets varying from oval-oblong to linear, equalling or longer than the petiole; racemes axillary, few-flowered, shorter or a little longer than the leaves; apetalous flowers glomerate, and nearly sessile in the axils of the leaves; legumes of the sessile flowers nearly orbicular, of the petaliferous ones ovate.— *Pers. syn.* 2. *p.* 318; *Pursh, fl.* 2. *p.* 481; *Torr. & Gr. fl. N. Am.* 1. *p.* 367. Hedysarum violaceum, *Linn. sp.* 2. *p.* 749 (excl. syn. *Gron.*); *Willd. sp.* 3. *p.* 1195. H. frutescens, *Linn. l. c.*

var. 1. *divergens:* peduncles, towards the extremity of the branches, filiform, and much longer than the leaves, the flowers rarely producing fruit; leaflets oval or oblong. *Torr. & Gr. l. c.* L. divergens, *Pursh, l. c.; DC. prodr.* 2. *p.* 350. Hedysarum divergens, *Willd. l. c.*

var. 2. *sessiliflora:* flowers somewhat glomerate, on peduncles much shorter than the leaves; those at the base chiefly apetalous and fertile; leaflets oblong or elliptical. *Torr. & Gr. l. c.* L. sessiliflora, *Michx. l. c.* (partly); *Pursh, fl. l. c.; Nutt. gen.* 2. *p.* 108; *DC. l. c.* (including L. violacea); *Ell. sk.* 2. *p.* 204; *Beck, bot. p.* 86; *Darlingt. fl. Cest. p.* 420. Hedysarum violaceum, *Linn.* (in part); *Willd. l. c.*

var. 3. *angustifolia:* peduncles short; the flowers glomerate towards the extremity of the branches; petioles slender, mostly erect; leaves much crowded above, and fascicled on short branchlets; leaflets narrowly oblong or linear. *Torr. & Gr. l. c.* Lespedeza reticulata, *Pers. syn. l. c.; DC. l. c.; Beck, bot. p.* 86; *Darlingt. l. c.* L. sessiliflora (partly), *Michx. l. c.* L. frutescens, *DC.* not of *Ell.* Hedysarum reticulatum, *Willd. l. c.* Medicago Virginica, *Linn.*

Stems usually several from one root, usually erect, but in the third variety often inclined or diverging, slender, nearly simple or somewhat branching, pubescent. Leaves all petiolate: leaflets half an inch to an inch and a quarter long, and in var. 1. only 1 – 3 lines wide, a little hairy with appressed pubescence underneath. Stipules subulate, minute. Flowers smaller than in *L. procumbens;* the petaliferous ones sometimes fertile. Calyx hairy; the segments narrowly lanceolate, the 2 upper ones united nearly to the summit. Corolla violet-purple. Legumes of the petaliferous flowers different in form from the others, being longer, and acuminated with the long straight style.

Dry woods and thickets; common. August – September.

§ 2. LESPEDEZARIA, Torr. & Gr. *Flowers all fertile and perfect, in dense or capitate spikes: corolla about the length of the calyx, white or ochroleucous, with a purple spot on the vexillum: stems erect.*

4. LESPEDEZA HIRTA, *Ell.* *Hairy Lespedeza.*

Stem branching above, villous; leaflets roundish-oval, emarginate, pubescent or silky, mostly longer than the petiole; spikes oblong-cylindrical, the peduncles at length much longer

than the leaves; calyx scarcely exceeding the oval legume.— *Ell. sk.* 2. *p.* 207; *Torr. compend. p.* 267; *Torr. & Gr. fl. N. Am.* 1. *p.* 368. L. polystachya, *Michx. fl.* 2. *p.* 71. *t.* 40; *Pursh, fl.* 2. *p.* 480; *DC. prodr.* 1. *p.* 349; *Hook. fl. Bor.-Am.* 1. *p.* 156; *Beck, bot. p.* 87; *Darlingt. fl. Cest. p.* 421. L. villosa, *Pers. syn.* 2. *p.* 318; *DC. l. c.* Hedysarum hirtum, *Linn. sp.* 2. *p.* 748; *Willd. sp.* 3. *p.* 1193.

Stem 2 – 4 feet high, paniculately branched. Leaflets about an inch long, sometimes broadly obovate, strongly pubescent underneath, and sometimes also above, with appressed hairs. Stipules narrowly lanceolate. Spikes an inch in length, on rather short axillary peduncles 1 – 3 inches in length. Calyx deeply 5-parted, hairy. Corolla yellowish-white. Legume very villous.

Dry hill-sides and sandy fields; rather common. August – September.

5. LESPEDEZA CAPITATA, *Michx.* *Round-headed Lespedeza.*

Stem erect, nearly simple, villous-pubescent; leaves on very short petioles; leaflets varying from elliptical to linear, silky underneath; spikes capitate, on short peduncles; calyx much shorter than the oval legume. — *Michx. fl.* 2. *p.* 71; *Pursh, fl.* 2. *p.* 480; *Nutt. gen.* 2. *p.* 107; *Bigel. fl. Bost. p.* 272; *DC. prodr.* 2. *p.* 349; *Beck, bot. p.* 87; *Torr. & Gr. fl. N. Am.* 1. *p.* 368. L. frutescens, *Ell. sk.* 2. *p.* 206; *Beck, bot. p.* 87; *Darlingt. fl. Cest. p.* 421. L. fruticosa, *Pers. syn.* 2. *p.* 318. Hedysarum frutescens, *Willd. sp.* 3. *p.* 1193, not of *Linn. sp. ed.* 1.

var. *vulgaris*: leaflets elliptical-oblong, smooth, or somewhat pubescent above. *Torr. & Gr. l. c.*

var. *angustifolia*, Pursh: leaflets linear, narrow, elongated, smooth above; peduncles longer. *Torr. & Gr. l. c.* L. angustifolia, *Ell. l. c.; DC. l. c.*

Stems 2 – 4 feet high, straight, the pubescence often tawny, entirely herbaceous. Leaflets 1 – 1½ inch long: in the common variety, 4 – 6 lines wide; in the other form, scarcely two lines; when young, commonly silky-pubescent on both surfaces, but finally smoothish above. Spikes oblong or nearly globose, scarcely an inch long; the peduncles 4 – 6 lines in length. Calyx very hairy, deeply 5-parted. Corolla white or cream-colored. Legume hairy, scarcely more than half the length of the calyx.

Sandy fields; southern part of the State, and valley of the Hudson; also on Long Island. August – September.

TRIBE VII. *GENISTEÆ. DC.*

Corolla papilionaceous. Stamens 10, *monadelphous: anthers of two forms. Legumes continuous, one-celled, sometimes intercepted internally, but not jointed. Radicle incurved or inflexed. Leaves simple or palmately compound, not stipellate.*

19. GENISTA. *Linn.; Endl. gen.* 6500. *GREEN-WEED.*

[From the Celtic word *gen*, signifying a small bush.]

Calyx 2-lipped; the upper lip 2-parted; the lower 3-toothed. Vexillum oblong-oval, straight, scarcely including the stamens and style. Stamens unequal; the 5 alternate anthers shorter. Legume flat, many-seeded, not glandular. — Shrubby or suffruticose, often spiny plants, with simple leaves and yellow flowers.

1. GENISTA TINCTORIA, *Linn.* *Dyer's Green-weed. Wood-waxen.*

Stem erect; branches terete, striate; leaves lanceolate, nearly smooth; flowers in spiked racemes; legumes smooth.—*Engl. bot. t.* 44; *Bigel. fl. Bost. p.* 267; *DC. prodr.* 2. *p.* 151; *Torr. & Gr. fl. N. Am.* 2. *p.* 369.

Stem a foot or more high, erect or ascending, branching, shrubby. Leaves sessile, rather distant. Flowers nearly sessile, with a small bracteal leaf at the base of each.

On a hill-side north of Peekskill, on the Hudson (*Dr. S. B. Mead*). Introduced from Europe. The plant yields a coloring matter that is used for dyeing wool yellow. It has also been employed medicinally as a diuretic and mild purgative.

20. CROTALARIA. *Linn.; Endl. gen.* 6472. *RATTLEBOX.*

[From the Greek, *crotalon*, a rattle; the loose seeds making a rattling noise in the ripe legume.]

Calyx 5-cleft, somewhat 2-lipped; the upper lip 2-cleft, lower 3-cleft. Vexillum large, mostly obcordate. Keel falcate, acuminate (rarely obtuse). Sheath of the stamens usually cleft on the upper side. The 5 alternate anthers smaller and roundish. Style bearded on the sides. Legumes turgid, inflated. Seeds several, reniform, compressed.— Herbaceous or shrubby plants. Leaves simple (as in all the North American species), or palmately compound. Flowers in racemes, commonly yellow, with one or two bracteoles at the base of the calyx.

1. CROTALARIA SAGITTALIS, *Linn.* *Small Annual Rattlebox.*

Annual, hairy; stem erect, branching; leaves oblong-lanceolate, nearly sessile; stipules united and decurrent on the stem, obversely sagittate; peduncles about 3-flowered; corolla rather shorter than the calyx; legumes much inflated, oblong, many-seeded.—*Linn.; Michx.*

fl. 2. *p.* 55 (*var.* oblonga); *Pursh, fl.* 2. *p.* 469; *Ell. sk.* 2. *p.* 293; *DC. prodr.* 2. *p.* 124; *Bigel. fl. Bost. p.* 267; *Beck, bot. p.* 77; *Darlingt. fl. Cest. p.* 404; *Torr. & Gr. fl. N. Am.* 1. *p.* 370. C. parviflora, *Roth; Willd. sp.* 3. *p.* 973.

Stem 4 – 8 inches high, clothed with brownish hairs; the branches spreading. Leaves 1 – 1½ inches long and 4 – 6 lines wide, hairy on both side. Stipules conspicuous, adhering for two-thirds of their length to the stem, free and acute above; the lower ones often wanting. Racemes opposite the leaves. Flowers yellow. Calyx deeply parted; the segments almost foliaceous. Legume an inch or more in length and nearly half an inch in diameter, blackish when ripe, thin and coriaceous. Seeds curved, shining.

Dry sandy soils; not rare in the southern part of the State. July – August.

21. LUPINUS. *Tourn.; Agardh, f. syn. gen. Lupin.* (1835); *Endl. gen.* 6473. *LUPINE.*

[So called from the Latin, *lupus*, a wolf; because it was supposed to devour the fertility of the soil.]

Calyx deeply 2-lipped, mostly with 2 bracteoles at the base; the upper lip 2-cleft or toothed; the lower entire or 3-toothed. Vexillum with the sides reflexed: wings united at the summit: keel acuminate. Anthers alternately oblong and roundish; the former earlier matured than the others. Stigma bearded. Legume coriaceous, oblong or linear, more or less compressed, often torulose or intercepted by oblique cellular partitions.—Herbaceous plants. Leaves palmately 5 – 15-foliolate. Flowers in terminal racemes or spikes.

1. LUPINUS PERENNIS, *Linn.* *Common Wild Lupine.*

Perennial, somewhat hairy; leaflets 7 – 11, obovate-oblong or oblanceolate, obtuse, slightly mucronate, smoothish above, a little heavy underneath and on the margins; stipules setaceous, deciduous; flowers scattered, in a long loose raceme; bracts shorter than the pedicels, subulate, caducous; upper lip of the calyx emarginate, gibbous at the base; lower nearly entire; keel ciliate; legumes linear-oblong, very hairy.— *Linn.; Michx. fl.* 2. *p.* 55; *Bot. mag. t.* 201; *Pursh, fl.* 2. *p.* 467; *Ell. sk.* 2. *p.* 191; *Bart. fl. N. Am.* 2. *t.* 38; *DC. prodr.* 2. *p.* 408; *Bigel. fl. Bost. p.* 267; *Hook. fl. Bor.-Am.* 1. *p.* 163; *Beck, bot. p.* 92; *Darlingt. fl. Cest. p.* 431; *Torr. & Gr. fl. N. Am.* 1. *p.* 377.

Root creeping. Stem a foot or eighteen inches high, erect. Leaflets usually 8 or 9, one or two inches long, radiating from a common centre: petiole 2 – 4 inches in length. Raceme 6 – 10 inches long. Flowers large and showy, purplish blue. Calyx with minute subulate bracteoles, which are caducous, or often wanting. Legume about an inch and a half long, brownish when ripe, 4 – 5-seeded. Seeds obovoid, smooth, variegated.

Sandy fields and woods; not rare. *Fl.* June. *Fr.* July. A very ornamental plant, often seen cultivated in gardens. Forty-four other species of this genus are described in the Flora of North America.

TRIBE VIII. *SOPHOREÆ. DC.*

SOPHOREÆ and PODALYRIEÆ. *Benth.*

Corolla papilionaceous. Stamens 10, *distinct: anthers uniform. Legume continuous, or frequently moniliform, but not jointed. Embryo incurved or inflexed, or often straight. — Leaves unequally pinnate, palmate or simple, not stipellate.*

22. BAPTISIA. *Vent. dec. nov. p.* 9; *Benth. comm. Leg. mem. p.* 2; *Endl. gen.* 6421.

WILD or *FALSE INDIGO.*

[From the Greek, *bapto*, to dye; some of the species yielding a coloring matter like indigo.]

Calyx campanulate, 4 – 5-cleft at the summit. Vexillum rather shorter than the wings, or about the same length, orbicular, emarginate, the sides reflexed: wings oblong: keel slightly incurved, nearly as long as the wings; the petals somewhat united. Ovary stipate, with numerous ovules. Style curved, dilated below, attenuated upward: stigma minute. Legume stipitate, inflated. — Perennial North American herbs, with simple or palmately trifoliolate leaves. Stipules often small or caducous. Flowers in terminal racemes, or sometimes solitary and axillary. Pedicels usually without bracts.

1. BAPTISIA TINCTORIA, *R. Brown.* *Common Wild Indigo.*

Plant smooth, much branched; leaves trifoliolate, nearly sessile; leaflets obovate-cuneiform, rounded and often emarginate at the summit; stipules and bracts minute, deciduous; racemes short, few-flowered; pedicels shorter than the (yellow) flowers; legume oval-globose, on a long stipe.—*R. Br. in hort. Kew.* (*ed.* 2.) 3. *p.* 6; *Ell. sk.* 1. *p.* 467; *Nutt. gen.* 2. *p.* 282; *Torr. fl.* 1. *p.* 441; *DC. prodr.* 2. *p.* 100; *Hook. fl. Bor.-Am.* 1. *p.* 129; *Beck, bot. p.* 77; *Darlingt. fl. Cest. p.* 404; *Torr. & Gr. fl. N. Am.* 1. *p.* 386. Sophora tinctoria, *Linn.* Podalyria tinctoria, *Lam. ill. t.* 327; *Willd. sp.* 3. *p.* 503; *Michx. fl.* 1. *p.* 265; *Pursh, fl.* 1. *p.* 308; *Bot. mag. t.* 1099; *Bigel. fl. Bost. p.* 170.

Plant 2 – 3 feet high, with very numerous spreading branches, somewhat glaucous. Leaflets about three-fourths of an inch long: common petiole 1 – 3 lines long, in the upper leaves almost wanting. Stipules very minute. Racemes 3 – 6-flowered, loose. Flowers about half an inch long. Calyx 4-cleft; the upper segment (consisting of the 2 upper ones united) broader. Corolla bright yellow. Ovary with 6 – 8 ovules. Legume about half an inch long, exclusive of the stipe which is nearly of the same length, acuminate with the persistent base of the style; of a dark bluish color, or nearly black when ripe. Seed ovoid, light brown, with a small round hilum.

Dry sandy woods and fields. *Fl.* June – August. *Fr.* September. The plant usually turns black in drying. It yields a quantity of coarse indigo, much resembling the common *fig blue*. It is also employed medicinally, being reputed to possess astringent, cathartic, emetic and stimulating properties. See *Thatcher's Dispensatory*, and *Wood & Bache's U. S. Dispens. appen.*

2. BAPTISIA AUSTRALIS, *R. Brown.* *Blue-flowered False Indigo.*

Smooth: leaves on short petioles, the uppermost sometimes nearly sessile; leaflets oblong-cuneiform, obtuse; stipules lanceolate, about as long as the petioles; racemes elongated, erect; bracts ovate-lanceolate, caducous; pedicels shorter than the calyx; flowers large, blue; legumes oval-oblong, the stipe about the length of the calyx.— *R. Br. l. c. p.* 6; *Ell. sk.* 1. *p.* 468; *DC. prodr.* 2. *p.* 100; *Torr. & Gr. fl. N. Am.* 1. *p.* 385. B. cœrulea, *Nutt. gen.* 1. *p.* 281. Sophora australis, *Linn.; Bot. mag. t.* 509. S. cœrulea, *Trew, pl. rar.* 6. *t.* 14, ex *R. Br.* S. alba, *Murr. in com. Gœtt.* 1. *p.* 96. *t.* 6. Podalyria australis, *Willd. sp.* 2. *p.* 503; *Vent. hort. Cels. t.* 56. P. cœrulea, *Michx. fl.* 1. *p.* 264.

Stem 2 – 3 feet high, erect or somewhat decumbent. Leaflets 2 – 3 inches long. Stipules foliaceous, often persistent. Flowers an inch long, bright indigo-blue. Calyx 4-toothed; the upper tooth broader. Legume 2 inches long, with a short abrupt point.

Near Canandaigua (*Prof. Eaton*). A common species in the Western States, and often cultivated in gardens.

23. CERCIS. *Linn.; Endl. gen.* 6750. *JUDAS-TREE.*

[From *kerkis*, a name of Theophrastus, applied to a tree supposed to be the modern Cercis.]

Calyx broadly campanulate, with 5 short obtuse teeth. Petals scarcely papilionaceous, all distinct and unguiculate: vexillum smaller than the wings: keel petals larger than the wings. Stamens somewhat unequal. Legume oblong, much compressed, acute at each end, many-seeded, slightly stipitate; upper suture with a winged margin. — Trees, with simple cordate leaves and membranaceous caducous stipules. Flowers deep rose-color or purple, fasciculate, appearing before the leaves.

1. CERCIS CANADENSIS, *Linn.* *Red-bud*, or *American Judas-tree.*

Leaves orbicular-cordate, acuminate, hairy along the veins underneath. — *Mill. ic. t.* 2, ex *DC.; Michx. fl.* 1. *p.* 265; *Pursh, fl.* 1. *p.* 308; *Torr. fl.* 1. *p.* 441; *DC. prodr.* 2. *p.* 518; *Darlingt. fl. Cest. p.* 433; *Torr. & Gr. fl. N. Am.* 1. *p.* 392; *Loud. arb. et fr. abr. p.* 258.

A tree 15 – 30 feet high, with smooth grayish brown bark and flexuous branches. Leaves 3 – 4 inches in diameter, with a short abrupt point, about 7-nerved. Flowers covering the branches in numerous fascicles of 4 to 8 together, on short slender pedicels. Calyx colored, gibbous at the base, pubescent on the margin of the teeth. Legume about 3 inches long, coriaceo-membranaceous.

Niagara county? (*Dr. Kinnicutt*). Some years ago I received specimens of this plant from Dr. Kinnicutt, which I think were collected near Lewiston, but they may not have been native. The flowers are acid, and are said to be used by the French Canadians for salads and pickles.

TRIBE IX. *CASSIEÆ. Bronn.*

Corolla irregular, or sometimes nearly regular, never truly papilionaceous. Stamens 10, *or sometimes fewer, distinct: anthers mostly of two forms. Legume continuous (not jointed),* 1-*celled, or spuriously many-celled by transverse partitions between the seeds. Embryo straight, frequently with a small quantity of albumen.—Trees, shrubs or herbs. Leaves pinnate or bipinnate, not stipellate.*

24. CASSIA. *Linn.; Vogel, syn. gen. Cass.* (1837); *Endl. gen.* 6781. CASSIA.

["According to Olaus Celsus, this name is to be traced to the Hebrew, *ketzioth*, rendered by *kasian* in the Septuagint, and latinized by *cassia*." LOUDON.]

Sepals slightly united at the base, usually unequal, deciduous. Petals 5, unequal. Stamens 10 (the 5 alternate ones rarely wanting), unequal or rarely equal; the 3 upper (posterior) commonly abortive: anthers opening at the summit, or sometimes by a pore at the base. Legume terete or compressed, one-celled, or many-celled by transverse partitions which are sometimes filled with pulp. Seeds with a small quantity of albumen.— Trees, shrubs or (as in all the North American species) herbaceous plants, with simple, abruptly pinnated leaves. Flowers mostly yellow.

§ 1. CHAMÆSENNA, *DC. Anthers of the lower stamens fertile, thick; the* 3 *upper sterile and deformed.*

1. CASSIA MARILANDICA, *Linn.* *American* or *Wild Senna.*

Perennial, erect; leaflets 12 – 18, lanceolate-oblong, mucronate; gland near the base of the petiole clavate; racemes axillary, and somewhat paniculate at the summit of the branches, many-flowered; legumes linear, somewhat curved, at first hairy, finally smooth. — *Michx. fl.* 1. *p.* 261; *Pursh, fl.* 1. *p.* 306; "*Schk. handb.* 1. *t.* 113;" *Ell. sk.* 1. *p.* 473; *Bigel. med. bot. t.* 39, *and fl. Bost. p.* 171; *Bart. veg. mat. med. t.* 12; *DC. prodr.* 2. *p.* 498; *Torr. fl.* 1. *p.* 439; *Beck, bot. p.* 94; *Darlingt. fl. Cest. p.* 433; *Torr. & Gr. fl. N. Am.* 1. *p.* 395. Senna foliis Mimosæ, &c. *Dill. Elth. t.* 260. *f.* 339.

Stem 3 – 4 feet high, smooth or somewhat pubescent. Leaflets 1 – 1½ inch long and 4 – 6 lines wide, abruptly pinnate, conspicuously mucronate, slightly ciliate: petiole with a small green stipitate gland near the base. Stipules and bracts subulate, hairy, striate, persistent. Racemes one or two inches long, in the axils of the upper leaves, and also clustered at the summit of the stem. Sepals nearly half as long as the corolla, obtuse, greenish-yellow. Corolla yellow, often whitish when old: petals obovate-cuneate; the 3 upper ones erect; the 2 lower longer, deflected. Stamens unequal; the 3 upper ones flattened and sterile; the 3 lowest longest, with broad filaments and large incurved anthers; all the anthers dark purplish brown. Ovary villous, declined: style incurved. Legume about 4 inches long, flattened. Seeds 9 – 15 or more, compressed, separated by transverse partitions.

Banks of rivers; common. *Fl.* July – August. *Fr.* September – October. This plant

resembles the Senna of the shops (which is also a species of *Cassia*) in its medicinal properties, and may be substituted for it. See the works on materia medica quoted above; also *Wood & Bache's U. S. Dispens. p.* 182.

§ 2. LASIORHEGMA, Vogel. *Stamens* 10, *or by abortion* 9 – 5. *Anthers all fertile, commonly of unequal length, linear.*

2. CASSIA CHAMÆCRISTA, *Linn.* *Partridge Pea. Sensitive Pea.*

Annual, erect or decumbent; leaflets in numerous pairs, linear-oblong, oblique at the base, obtuse, mucronate; gland on the petiole cup-shaped; fascicles of flowers above the axils of the leaves; pedicels slender, bracteolate near the summit; flowers large; sepals with a long attenuate point; style filiform. — *Michx. fl.* 1. *p.* 262; *Smith in Abbot, ins. Georg. t.* 94; *Bot. mag. t.* 107; *Pursh, fl.* 1. *p.* 306; *Ell. sk.* 1. *p.* 473; *Bigel. fl. Bost. p.* 171; *Torr. fl.* 1. *p.* 439; *DC. prodr.* 2. *p.* 503; *Beck, bot. p.* 94; *Darlingt. fl. Cest. p.* 433; *Torr. & Gr. fl. N. Am.* 1. *p.* 395.

Stem commonly procumbent, spreading and branching from the base, about a foot long, pubescent. Leaflets 10 – 15 pairs, 6 – 8 lines long, smooth. Stipules and bracts subulate, striate, persistent. Fascicles 2 – 4-flowered: pedicels nearly an inch long, each with two bracteoles a little below the flower. Calyx colored, two-thirds the length of the corolla. Petals orange-yellow, obovate, two and sometimes three of them with a purple spot at the base. Anthers elongated, nearly sessile, four of them yellow, the rest purple. Style smooth, longer than the villous ovary. Legume about 2 inches long and one-third of an inch wide, 10 – 15-seeded, hairy along the sutures, smoothish on the sides.

Sandy fields: Staten Island; Long Island; in the neighborhood of New-York; and along the Hudson to Troy; rare in the interior of the State. July – September.

3. CASSIA NICTITANS, *Linn.* *Wild Sensitive Plant.*

Annual, erect or decumbent; leaflets in numerous pairs, oblong-linear, obtuse, mucronate; gland beneath the lowest pair of leaflets cup-shaped, slightly pedicellate; fascicles of flowers above the axils of the leaves, 2 – 3-flowered; pedicels very short; flowers small; sepals acuminate; stamens 5, nearly equal; style very short. — *Linn. hort. Cliff. t.* 36; *Michx. fl.* 1. *p.* 262; *Pursh, fl.* 1. *p.* 206; *Ell. sk.* 1. *p.* 474; *Torr. fl.* 1. *p.* 440; *DC. prodr.* 2. *p.* 503; *Beck, bot. p.* 94; *Darlingt. fl. Cest. p.* 432; *Torr. & Gr. fl. N. Am.* 1. *p.* 396.

Stem 8 – 12 inches high, with spreading branches from the base, pubescent, commonly purplish, slender. Leaflets 10 – 20 pairs, 4 – 6 lines long, a little oblique at the base, often emarginate, nearly smooth. Gland on the petiole dilated, purplish, on a short stalk. Flowers 3 – 4 lines long. Sepals ovate-lanceolate, with a long acumination. Petals deep yellow, obovate. Anthers truncated at the summit, opening by longitudinal slits their whole length. Ovary villous, more than twice the length of the style, which is thickened at the extremity: stigma truncate. Legume an inch and a half long, flat, clothed with appressed hairs.

Sandy fields; common in the southern part of the State, and in the counties along the Hudson, but rare in the interior. August.—This and the preceding species are very sensitive, folding their leaves in a few moments after being handled.

25. GYMNOCLADUS. *Lam. dict.* 1. *p.* 773, *and ill. t.* 823; *Endl. gen.* 6757.

COFFEE-TREE.

[Named from the Greek, *gymnos*, naked, and *klados*, a branch; from the remarkably naked appearance of the tree in winter; its branches being few and large.]

Flowers dicœcious. Calyx tubular, the limb 5-cleft; lobes lanceolate, equal. Petals 5, oblong, inserted into the summit of the tube. Stamens 10, included, inserted with the petals. Legume oblong, compressed, very large, thick, pulpy inside.—A pretty large tree, destitute of spines or prickles, with rough bark and few stout branches. Leaves unequally bipinnate. Flowers in axillary racemes. Petals white.

1. GYMNOCLADUS CANADENSIS, *Lam.* *Coffee-tree.*

Lam. l. c.; Michx. fl. 2. *p.* 241. *t.* 51; *Pursh, fl.* 1. *p.* 304; *Michx. f. sylv.* 1. *t.* 50; *DC. prodr.* 2. *p.* 480; *Torr. & Gr. fl. N. Am.* 1. *p.* 398. Guilandina dioica, *Linn. sp.* 1. *p.* 381.

Trunk 30 – 50 feet high, and often a foot or more in diameter; the branches few for the size of the tree, and thick. Bark bitter and acrid. Leaves 1 – 3 feet long, with 4 – 7 pinnæ, the lowest of which consists of a single pair of leaflets, the others 7 – 13-foliolate: leaflets ovate, acuminate, 1 – 2 inches long, mostly alternate, on partial stalks, nearly smooth. Racemes 3 – 6 inches long, somewhat compound. Flowers about an inch in length, on pedicels 2 – 4 lines long. Tube of the calyx as long as the lanceolate-acute lobes. Legume 6 – 10 inches long and nearly 2 inches broad, a little curved, and of a brown color. Seeds more than half an inch in diameter.

On Seneca Lake, near the mouth of Cachong creek, where was one tree eighteen inches in diameter (*Prof. J. Hall*). At the bottom of a ravine near the borders of Cayuga Lake (*Mr. Alexander Thompson*).

According to Michaux, the wood of the Coffee-tree, from the fineness and closeness of its grain, is fit for cabinet-making; and its strength renders it proper for building. Like the Locust, it has the valuable property of rapidly converting its sap into perfect wood; the proportion of the latter to the former being greater than in most other trees. It is much esteemed as an ornamental tree in parks and about houses.

26. GLEDITSCHIA. *Linn.; Lam. ill. t.* 857; *Endl. gen.* 6756. *HONEY LOCUST.*

[In honor of JOHN GOTTLIEB GLEDITSCH, a German botanist of the last century.]

Flowers polygamous. Sepals 3 – 5, equal, united at the base. Petals as many as the sepals, or sometimes fewer; the 2 lower ones sometimes united. Stamens as many as the sepals, and opposite to them; or often 6 – 9, one or more of them abortive, and belonging to an inner series. Style short, incurved: stigma pubescent. Legume flat, continuous, often intercepted internally between the seeds, dry or with a sweet pulp surrounding the seeds, which are solitary or numerous. Seeds oval, compressed: testa hard and crustaceous. Embryo surrounded with a thin albumen. Cotyledons flat, greenish. — Trees, with the supra-axillary branches often converted into simple or branched spines. Leaves abruptly pinnate or bipinnate; the leaflets somewhat serrate! Flowers small, greenish, spicate.

1. GLEDITSCHIA TRIACANTHOS, *Linn.* *Honey Locust. Sweet Locust.*

Spines thick; leaflets lanceolate-oblong; legume linear-oblong, much elongated, many-seeded; the intervals filled with a sweet pulp.—*Linn. sp.* 2. *p.* 1056; *Michx. fl.* 2. *p.* 257; "*Duham. arb.* (*ed. nov.*) 4. *t.* 25;" *Michx. f. sylv.* 2. *t.* 79; *Willd. sp.* 4. *p.* 1097; *Pursh, fl.* 1. *p.* 221; *Ell. sk.* 2 *p.* 709; *DC. prodr.* 2. *p.* 479; *Torr. compend. p.* 375; *Beck, bot. p.* 93; *Torr. & Gr. fl. N. Am.* 1. *p.* 398.

A middle sized tree; the trunk, in this State, seldom more than a foot and a half in diameter; when young, very spiny. Spines 2 – 3 inches long, usually triple, or furnished with two branches towards the base, sometimes compound, often disappearing as the tree advances in age. Leaves 6 – 10 inches or more in length, pinnate. Leaflets three-fourths of an inch long, nearly smooth. Racemes 1 – 2 inches long; the staminate and perfect ones nearly similar in form. Calyx villous, turbinate at the base: sepals oblong, rather obtuse. Petals a little smaller than the sepals. Stamens 5 – 7 in the staminate flowers, 6 – 8 in the perfect ones, 1 – 3 of them often abortive: anthers oval, versatile, opening longitudinally. Ovary villous: style rather short, incurved: stigma thick, capitate. Legume 9 – 18 inches long, somewhat falcate and twisted.

Not native in the State, but often planted about houses for ornament, and for hedges; nearly naturalized in some places. July. It is a native of the Western and Southern States. The wood is of but little value. Its foliage is very neat, but so thin as hardly to exclude the rays of the sun.

GROUP 13. *Ovaries one or several, simple and distinct, or combined into a compound ovary of 2 or more cells, with the placentæ in the axis. Flowers regular. Petals and (distinct) stamens inserted on the calyx. Albumen none.*

ORDER XXXVIII. ROSACEÆ. *Juss.* THE ROSE TRIBE.

Sepals 5 (rarely 3 or 4), more or less united, often with as many bracts; the odd one superior, or next the axis. Petals as many as the sepals (rarely none), inserted on the edge of a thin disk that lines the calyx. Stamens indefinite, rarely few. Ovaries solitary or several, with 1 – 2 or sometimes more ovules: styles often lateral. Fruit either a drupe, a pome, achenia, or follicular. Embryo straight: cotyledons flat or plano-convex.— Trees, shrubs or herbaceous plants, with alternate leaves, and usually furnished with conspicuous stipules. Flowers mostly handsome.

CONSPECTUS OF THE SUBORDERS.

1. AMYGDALEÆ. Calyx free from the ovary, deciduous. Ovary solitary, with two suspended ovules, and a terminal style. Fruit a drupe.— Trees or shrubs.
2. ROSACEÆ *proper*. Calyx often bracteolate, and appearing double. Ovaries several or numerous, rarely solitary, free from the calyx, but sometimes enclosed in its persistent tube: styles terminal or lateral. Fruit follicular, or consisting of numerous achenia.— Trees or shrubs.
3. POMEÆ. Calyx campanulate or urceolate; the tube becoming very thick and fleshy, including and cohering with the ovaries. Fruit a pome, with one or few ascending seeds in each cell.

Suborder I. AMYGDALEÆ. *Juss.*

Calyx free from the ovary, deciduous. Ovary solitary, with 2 collateral suspended ovules: styles terminal. Fruit a drupe. Seed mostly solitary; the funiculus adhering to the side of the cavity of the ovary.— Trees or shrubs, with simple leaves. Stipules free. Fruit mostly eatable; the kernel (as well as the leaves) yielding hydrocyanic acid (prussic acid).*

* The seeds of Amygdaleæ do not contain the prussic acid ready formed, but two peculiar principles called *amygdaline* and *emulsine*, which are contained in distinct cells. When the kernels are bruised, and especially when heat is applied, these substances immediately react on each other, giving rise to the formation of *prussic acid*, together with some other products.

1. PRUNUS. *Tourn.; Juss. gen. p.* 341; *Endl. gen.* 6406. *PLUM.*

[The Latin name for Plum.]

Calyx urceolate-hemispherical; the limb 5-parted, regular, deciduous. Petals spreading. Stamens numerous. Ovary smooth. Drupe ovate or oblong, fleshy, smooth, usually covered with a bloom; the stone or nucleus more or less compressed, acute, smooth, the margins somewhat grooved.—Small trees or shrubs. Leaves serrate, convolute in vernation. Flowers white, usually appearing before the leaves, from lateral buds; the pedicels in umbellate fascicles.

1. PRUNUS AMERICANA, *Marshall.* *Red Plum. Yellow Plum.*

Branches somewhat thorny; leaves ovate or obovate, conspicuously acuminate, sharply and often doubly serrate, strongly veined underneath, finally almost smooth; petioles often with 2 glands; umbels 2 – 5-flowered; drupe roundish-oval (red or yellow when ripe), nearly destitute of bloom.—*Marsh. arbust. p.* 111; *Darlingt. in ann. lyc. New-York,* 3. *p.* 87. *t.* 1, *and fl. Cest. p.* 287; *Beck, bot. p.* 95; *Torr. & Gr. fl. N. Am.* 1. *p.* 407. P. nigra, *Ait. Kew.* (ed. 1.) 2. *p.* 165; *Bot. mag. t.* 1117; *Pursh, fl.* 1. *p.* 331; *Willd. sp.* 2. *p.* 993. P. hyemalis, *Ell. sk.* 1. *p.* 542. Cerasus nigra, *Loisel.; Seringe in DC. prodr.* 2. *p.* 538; *Hook. fl. Bor.-Am.* 1. *p.* 167.

A tree or large shrub, 8 – 15 feet high, irregularly branched, and somewhat spiny. Leaves 2 – 3 inches long, pubescent underneath when young. Umbels mostly 3 – 4-flowered. Calyx-segments linear-lanceolate, pubescent. Fruit half an inch to an inch in diameter, oval or nearly globose, mostly reddish-orange when ripe, with a juicy yellow pulp and a thick tough skin. It is palatable when cultivated, but rather acerb in a wild state.

Banks of streams, borders of woods, etc.; frequent in the valley of the Hudson, and along the Mohawk. *Fl.* April. *Fr.* August. This species is widely diffused throughout the United States.

2. PRUNUS MARITIMA, *Wang.* *Beach Plum. Sand Plum.*

Low, with straggling branches, seldom thorny; leaves varying from ovate to obovate, usually somewhat acuminate, finely and sharply serrate; petioles, or lower part of the lamina, mostly with 2 glands; umbels few-flowered; pedicels short, pubescent; fruit subglobose, covered with a bloom.— *Torr. & Gr. fl. N. Am.* 1. *p.* 408.

var. 1: leaves softly pubescent underneath; fruit large. *Torr. & Gr. l. c.* P. maritima, *Wang. Amer. p.* 103; *Willd. enum.* 1. *p.* 519; *DC. prodr.* 2. *p.* 533. P. sphærocarpa, *Michx. fl.* 1. *p.* 284. P. pubescens, *Pursh, fl.* 1. *p.* 231; *Torr. fl.* 1 *p.* 469. P. littoralis, *Bigel. fl. Bost. p.* 193. Cerasus pubescens, *Seringe in DC. l. c. p.* 538.

var. 2: leaves, when old, nearly smooth on both sides; fruit smaller. *Torr. & Gr. l. c.* P. pygmæa, *Willd. sp.* 2. *p.* 993, *and enum.* 1. *p.* 518. P. acuminata, *Michx. l. c.* Cerasus pygmæa, *Loisel.; DC. l. c.?*

A shrub 2 – 5 feet high, in exposed situations sometimes almost prostrate. Leaves 2 – 3 inches long, of a firm texture when old; sometimes (particularly in var. 1.) without an acumination, or even obtuse: petioles about one-third of an inch long, pubescent. Flowers very numerous, appearing just before the leaves unfold; the umbels usually 2 – 3-flowered: pedicels three-fourths of an inch long. Calyx pubescent. Fruit usually purple, but sometimes crimson; in the first variety, often an inch in diameter, and somewhat oval, but often much smaller and globose on the same plant; in the second variety, they are always small (the size of a small cherry).

The first variety is abundant on the sea-beach of Long Island; the other grows in sandy fields and woods, not far from the salt water. *Fl.* April – May. *Fr.* September. When fully ripe, and growing in exposed situations, particularly on the sides of sand-banks, the fruit is agreeably flavored; but much of it is acerb and astringent. It is sometimes sold in the New-York market under the name of *Beach Plum.*

2. CERASUS. *Juss.; DC. prodr.* 2. *p.* 535. CHERRY.

[*Cerasus* is the name of an Asiatic town, whence the Cherry-tree is said to have been introduced into Europe.]

Flowers as in PRUNUS. Drupe globose, destitute of bloom; the stone mostly globose and smooth (not sulcate on the margins).— Trees or shrubs. Leaves conduplicate in vernation.

§ 1. EUCERASUS, Torr. & Gr. *Flowers from lateral leafless buds, appearing before or with the leaves: pedicels in umbellate fascicles, or corymbose.*

1. CERASUS PUMILA, *Michx.* *Sand Cherry.*

Stem depressed or prostrate; leaves oblanceolate, obovate-lanceolate or sometimes oval, acute or obtuse, slightly and sparingly serrate, smooth, whitish underneath; umbels sessile, few-flowered; drupes ovoid.—*Michx. fl.* 1. *p.* 286; *Seringe in DC. prodr.* 2. *p.* 537; *Hook. fl. Bor.-Am.* 1. *p.* 168. C. depressa, *Seringe, l. c.; Hook. l. c.* Prunus pumila, *Linn. mant. p.* 75; *Willd. sp.* 2. *p.* 990; *Pursh, fl.* 1. *p.* 538; *Torr. fl.* 1. *p.* 470; "*Guimp. Otto & Hayne, holz. t.* 119." P. depressa, *Pursh, l. c.; Bigel. fl. Bost. p.* 192. P. Susquehannæ, *Willd. enum.* 1. *p.* 519.

Stem trailing, 2 – 3 feet long, with ascending branches. Leaves 1 – 3 inches long, and usually about half an inch broad. Umbels appearing with the young leaves, about 4-flowered. Pedicels smooth, short. Fruit small, dark red, eatable.

Sandy and rocky shores; Highlands of New-York: rare. Shores of Lake Champlain (*Bigelow*). Near Troy (*Dr. Wright and Prof. J. Hall*). *Fl.* May.

2. CERASUS PENNSYLVANICA, *Loisel.* *Wild Red Cherry,* or *Bird Cherry.*

Leaves oval or oblong-lanceolate, acuminate, finely and sharply serrate, smooth and shining when old; umbels somewhat pedunculate and corymbose, many-flowered; pedicels rather long and slender; drupe small, ovoid-globose.—*Seringe in DC. prodr.* 2. *p.* 529; *Hook. fl. Bor.-Am.* 1. *p.* 168; *Torr. & Gr. fl. N. Am.* 1. *p.* 409. C. borealis, *Michx. fl.* 1. *p.* 286; *Michx. f. sylv.* 2. *p.* 96. *t.* 90; *Seringe, l. c.* Prunus Pennsylvanica, *Linn. suppl. p.* 252; *Ait. Kew.* (ed. 1.) 2. *p.* 165; *Willd. sp.* 2. *p.* 992; *Pursh, fl.* 2. *p.* 331; *Torr. fl.* 1. *p.* 168. P. lanceolata, *Willd. arb. t.* 3. *f.* 1. P. borealis, *Pursh, l. c.; Bigel. fl. Bost. p.* 193.

A tree seldom exceeding 20 or 25 feet in height and 5 or 6 inches in diameter; the bark reddish, and marked with white dots. Leaves 2 – 4 inches in diameter, rather thin, acute at the base, often with 2 small glands on the petiole or near the base of the lamina; the serratures glandular and incurved. Umbels 3 – 6-flowered; the pedicels about an inch long. Calyx smooth; segments semiovate, obtuse. Petals obovate. Fruit the size of a large pea, red, austere, scarcely eatable.

Rocky woods; rather common throughout the State, except below the Highlands, where it is rare. *Fl.* May. *Fr.* July.

§ 2. PADUS, Torr. & Gr. *Flowers in racemes terminating leafy branches, appearing after the evolution of the leaves: leaves deciduous.*

3. CERASUS VIRGINIANA, *DC.* *Choke Cherry.*

Leaves broadly oval or somewhat obovate, with a short abrupt acumination, very sharply serrate with subulate teeth, mostly hairy in the axils of the veins underneath; racemes short, erect or spreading; petals orbicular; drupes subglobose, dark red.— *Seringe in DC. prodr.* 2. *p.* 539 (excl. syn. *Michx.*); *Torr. & Gr. fl. N. Am.* 1. *p.* 410. C. serotina, *Hook. fl. Bor.-Am.* 1. *p.* 169. C. obovata, *Beck, bot. p.* 97. Prunus Virginiana, *Linn. sp.* 1. *p.* 473 (excl. syn.); *Willd. sp.* 2. *p.* 896, *and arb. t.* 5. *f.* 1; "*Guimp. Otto & Hayne, holz. t.* 36." P. rubra, *Ait. Kew.* (*ed.* 1.) 2. *p.* 163. P. serotina, *Pursh, l. c.; Torr. fl.* 1. *p.* 468. P. obovata, *Bigel. fl. Bost. p.* 192.

A shrub or small tree. Leaves 2 – 4 inches long, membranaceous, the serratures sometimes double, commonly with several small glands on the upper part of the petiole. Racemes 2 – 3 inches long. Calyx hemispherical; the teeth very short, obtuse and ciliate. Fruit about the size of a pea, bitter and astringent, scarcely eatable.

Rocky hill-sides; rather common north and west of the Highlands. *Fl.* May. *Fr.* July – August.

4. CERASUS SEROTINA, *DC.* *Wild Cherry. Black Cherry.*

Leaves oval-oblong or lanceolate-oblong, rather coriaceous, acuminate, smooth or bearded

along the midrib underneath, smooth and shining above, finely serrate with incurved callous teeth; racemes elongated, spreading; petals broadly obovate; drupes globose, purplish-black.—*Seringe in DC. prodr.* 2. *p.* 540; *Torr. & Gr. fl. N. Am.* 1. *p.* 410. C. Virginiana, *Michx. fl.* 1. *p.* 283; *Michx. fl. sylv.* 2. *p.* 89. *t.* 88; *Hook. l. c.* (excl. syn.); *Darlingt. fl. Cest. p.* 289. Prunus serotina, *Ehrh. beitr.* 3. *p.* 20; *Willd. arb. t.* 5. *f.* 2, *and spec.* 2. *p.* 986; *Guimp. Otto & Hayne, holz. t.* 37, not of *Pursh, Torr. &c.* P. Virginiana, *Nutt. dict.; Wang. Amer. t.* 14. *f.* 3; *Ell. sk.* 1. *p.* 540; *Torr. fl.* 1. *p.* 467; *Bigel. fl. Bost. p.* 192; *Beck, bot. p.* 97; *Darlingt. fl. Cest. p.* 289.

A tree 30 – 60 feet (in favorable situations 80 feet) high. The heart-wood is a reddish color, hard and very close-grained. Leaves 2 – 4 inches long, of a deep brilliant green on the upper surface; the serratures inflexed so abruptly at the point, that they appear rather obtuse. Racemes 3 – 4 inches long, finally pendulous; the pedicels about 3 – 4 lines long. Calyx hemispherical, smooth; the teeth very short and acute. Fruit about 3 lines in diameter, dark purple or nearly black when mature, bitter and rather nauseous to most persons.

Woods, shores of rivers, and along fences. *Fl.* May – June. *Fr.* August.

The wood of this tree is employed extensively by cabinet-makers, being nearly as handsome as the inferior kinds of mahogany. The bark is a strong aromatic bitter, and is considered a valuable tonic (See *Wood & Bache's U. S. Dispens. p.* 536).— This synonymy of this and the preceding species has been confounded or transposed by many botanists. The *Prunus Virginiana* of Linnæus is undoubtedly the *Choke Cherry*, but until lately it had generally been considered the *Wild Cherry* (See the *Flora of North America, l. c.*).

Suborder II. ROSACEÆ proper. *Torr. & Gr.*

Calyx 5-cleft (rarely 3 – 4-cleft), naked, or often with bracteoles alternating with the segments, free from the ovaries. Stamens occasionally few. Ovaries usually several or numerous, rarely solitary, with 1 – 2 or more suspended or ascending ovules, distinct or very rarely combined, sometimes included in the persistent calyx-tube: styles terminal or lateral. Fruit follicular, or consisting of numerous achenia.— Herbs, shrubs or very rarely trees, with simple or compound leaves.

CONSPECTUS OF THE TRIBES.

Tribe I. SPIREÆ. Carpels mostly 5 (rarely more, or reduced to 1 or 2), follicular or 2-valved in fruit.—Shrubs or small trees, rarely herbs.

Tribe II. DRYADEÆ. Achenia or little drupes, either few or solitary; or numerous, and then crowded on a hemispherical torus.— Herbs, shrubs, or rarely trees.

Tribe III. ROSEÆ. Achenia numerous, inserted on the inner surface of the disk or hollow torus that lines the urn-shaped calyx-tube.— Shrubby and prickly plants, with pinnated leaves.

TRIBE I. *SPIREÆ. Juss.*

Calyx campanulate, imbricate, or sometimes valvate in æstivation. Carpels mostly 5 (*rarely more, sometimes reduced to* 1 *or* 2), *verticillate, follicular or* 2-*valved in fruit: styles terminal. Seeds* 1 – 10 *in each carpel, pendulous or ascending.— Shrubs or small trees, rarely herbs.*

3. SPIRÆA. *Linn.; Endl. gen.* 6391. *MEADOW-SWEET.*

[Supposed to be the *Spireia* of Theophrastus. *Speira* signifies a cord.]

Calyx 5-cleft, persistent. Petals 5, obovate or roundish, equal. Stamens 20 – 50. Carpels 3 – 5 (sometimes 6 – 8), distinct or rarely united at the base, sometimes with a short stipe: style terminal. Seeds 2 – 15, suspended, or very rarely one of them ascending.—Unarmed shrubs or perennial herbs. Flowers white or rose-color.

§ 1. PHYSOCARPUS, Camb. *Carpels large, somewhat united at the base, inflated: seeds with a firm shining testa.— Shrubs, with somewhat lobed stipulate leaves.*

1. SPIRÆA OPULIFOLIA, *Linn.* *Nine-bark.*

Leaves roundish, often subcordate, slightly 3-lobed, doubly crenate-serrate, petioled, smoothish; corymbs umbel-like, pedunculate, hemispherical; pedicels filiform; carpels 3 – 5, finally spreading, much longer than the calyx.— *Linn. sp.* 1. *p.* 489; *Michx. fl.* 1. *p.* 293; *Ell. sk.* 1. *p.* 540; *Torr. fl.* 1. *p.* 482; *Seringe in DC. prodr.* 2. p. 542; *Hook. fl. Bor.-Am.* 1. *p.* 171; *Beck, bot. p.* 98; *Darlingt. fl. Cest. p.* 298.

A shrub 3 – 5 feet high, much branched; the old bark loose, and separating in numerous thin layers. Leaves about 2 inches in diameter, often roundish-ovate, more or less distinctly 3-lobed and crenately incised. Corymbs numerous, about two inches in diameter, many-flowered. Calyx (and pedicels) pubescent; the teeth ovate, acute. Disk entirely cohering with the tube of the calyx. Ovaries with 1 – 4 ovules, one of which is suspended, the others ascending: stigmas capitate. Carpels about three times as long as the calyx, compressed, a little acuminate, somewhat membranaceous, smooth and shining. Seeds about 2 in each carpel, reniform-obovoid.

Rocky banks of rivers, etc.; rather common. *Fl.* May – June. *Fr.* August.

§ 2. EUSPIRÆA, Torr. & Gr. *Carpels distinct, not inflated: seeds mostly with a loose membranaceous testa.— Shrubs, with entire leaves destitute of stipules.*

2. SPIRÆA SALICIFOLIA, *Linn.* *Queen-of-the-meadow.*

Plant nearly smooth; leaves lanceolate or obovate, simply or doubly serrate; racemes in crowded panicles; carpels 5, smooth.— *Linn.; Pall. fl. Ross. t.* 21; *Willd. sp.* 2. *p.* 1055;

Michx. fl. 1. *p.* 293 ; *Pursh, fl.* 1. *p.* 341 ; *Ell. sk.* 1. *p.* 560 ; *Torr. fl.* 1. 481 ; *DC. prodr.* 2. *p.* 544 ; *Beck, bot. p.* 98 ; *Darlingt. fl. Cest. p.* 299 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 415. "S. alba, *Du Roi, beitr.* 7. *p.* 137;" *Bigel. fl. Bost. p.* 196 ; *Wats. dendrol. t.* 133.

Shrubby or suffruticose, 3 – 5 feet high ; the branches purplish, very brittle. Leaves variable in breadth and outline, usually about 2 inches long, mostly acute, but sometimes quite obtuse ; commonly smooth on both sides, but sometimes (particularly a narrow-leaved state of the plant from Oneida county) a little pubescent on the veins underneath, and minutely fringed on the margin : petioles very short. Flowers white, commonly with a tinge of purple. Disk with a free crenulate border. Petals crenulate.

Wet bushy meadows ; also in dry elevated situations (abundant on the Fishkill mountains). *Fl.* June – July. *Fr.* October.

3. SPIRÆA TOMENTOSA, *Linn.* *Hard-hack. Steeple-bush.*

Stem and lower surface of the leaves clothed with a rusty-colored tomentose pubescence ; leaves ovate or oblong, crowded, unequally serrate ; racemes crowded in an elongated tapering panicle ; carpels 5, woolly. — *Linn.* ; *Michx. fl.* 1. *p.* 293 ; *Willd. sp.* 2. *p.* 1056 ; *Pursh, fl.* 1. *p.* 341 ; *Ell. sk.* 1. *p.* 560 ; *Mead in N. York med. repos.* (n. ser.) 6. *p.* 256, *with a plate* ; *Torr. fl.* 1. *p.* 481 ; *Bigel. fl. Bost. p.* 197 ; *DC. prodr.* 2. *p.* 544 ; *Beck, bot. p.* 99 ; *Darlingt. fl. Cest. p.* 299 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 415.

Stem 2 – 3 feet high, somewhat branched, brittle, clothed with a loose wool that easily rubs off. Leaves 1 – 2 inches long, deep bright green above, finely contrasting with the rusty pubescence of the under surface, obtuse or acute ; the petioles scarcely 2 lines long. Panicle 2 – 6 inches long, very compact. Calyx woolly. Petals pale purple, crenulate, sometimes becoming green in withering. Seeds few in each carpel, subulate at each end.

Swamps ; rather rare. July – August. This plant is very astringent, and has been employed with success in chronic diarrhœa. See Dr. Mead's paper quoted above.

§ 3. ARUNCUS, Seringe. *Flowers diœcious : carpels distinct, not inflated : seeds with a loose membranaceous testa.—Herbs, with tripinnately divided leaves destitute of stipules : spikes filiform, in a large compound panicle.*

4. SPIRÆA ARUNCUS, *Linn.* *Goat's-beard.*

Leaves tripinnate, membranaceous ; leaflets lanceolate-oblong, acuminate, the terminal ones ovate-lanceolate, sharply and incisely doubly serrate ; flowers very numerous ; carpels 3 – 5, very smooth.— *Linn. sp.* 1. *p.* 496 ; *Michx. fl.* 1. *p.* 294 ; *Pursh, fl.* 1. *p.* 343 (excl. β.) ; *Ell. sk.* 1. *p.* 561 ; *Seringe in DC. prodr.* 2. *p.* 545 ; *Hook. fl. Bor.-Am.* 1. *p.* 173 ; *Beck, bot. p* 99 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 417. S. Aruncus, β. Americana, *Torr. fl.* 1. *p.* 482 (excl. syn. *Michx.*).

Stem branching, 3 – 5 feet high, smooth. Leaves very large, sometimes bipinnately divided: leaflets 2 – 3 inches long, smooth. Flowers very small, white, in numerous long slender spikes.

On the Catskill mountains (*Prof. Eaton*). I have seen no specimen recently from this State.

5. GILLENIA. *Mœnch, suppl. p.* 286 ; *Nutt. gen.* 1. *p.* 307 ; *Endl. gen.* 6393.

INDIAN PHYSIC.

[A name of unknown meaning.]

Calyx tubular-campanulate, 5-toothed ; the teeth glandular-ciliate. Petals 5, linear-lanceolate, very long, inserted into the throat of the calyx. Stamens 10 – 20, mostly included, inserted in 2 or 3 series below the petals. Carpels 5, distinct, 2-valved : styles filiform. Seeds 2 (or more ?), oblong, ascending from the base of each carpel ; the testa thin, and rather crustaceous.—Perennial herbs, with trifoliolate, stipulate, nearly sessile leaves ; the leaflets membranaceous, doubly serrate and incised. Flowers (rose-color) paniculate-corymbose ; the peduncles and pedicels elongated.— Roots emetic and cathartic.

1. GILLENIA TRIFOLIATA, *Mœnch.* *Indian Physic. Bowman's-root.*

Stipules very small, linear-setaceous, entire ; leaflets ovate-oblong, acuminate ; ovaries pubescent.—*Nutt. gen. l. c.; DC. prodr.* 2. *p.* 546 ; *Ell. sk.* 1. *p.* 562 ; *Torr. fl.* 1. *p.* 463 ; *Beck, bot. p.* 108 ; *Darlingt. fl. Cest. p.* 300 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 418. Spiræa trifoliata, *Linn. sp.* 1. *p.* 489 ; *Michx. fl.* 1. *p.* 294 ; *Bot. mag. t.* 489 ; *Mill. ic. t.* 252 ; *Bigel. med. bot.* 3. *p.* 11. *t.* 41 ; *Bart. veg. mat. med.* 1. *t.* 5.

Stem 2 – 3 feet high, slender, smooth, paniculately branched. Upper leaves on very short petioles, the lower ones petiolate : leaflets 2 – 3 inches long, a little pubescent underneath, nearly smooth above, cut and irregularly serrate. Flowers few, in loose corymbose terminal panicles ; the pedicels slender. Calyx smoothish ; the teeth much shorter than the tube, acute. Petals pale rose-color or nearly white, about three-fourths of an inch long and 2 lines wide, much narrowed at the base, rather unequal. Stamens about 15, scarcely the length of the calyx. Ovaries slightly cohering, hairy, each with 4 collateral ovules ascending from the base of the placenta : style slender.

Shady woods, and on rocky hills ; western and southwestern counties. *Fl.* June. *Fr.* August.

The root of this plant has long possessed much reputation for its medicinal properties. It acts as an emetic or a cathartic, according to the dose (*Wood & Bache's U. S. Dispensatory, p.* 560).

2. GILLENIA STIPULACEA, *Nutt.* *American Ipecacuanha.*

Stipules very large, ovate, foliaceous, doubly incised; leaflets lanceolate, deeply incised; ovaries smooth. — *Nutt. gen. l. c.; Ell. sk.* 1. *p.* 562; *Torr. fl.* 1. *p.* 564; *DC. prodr.* 2. *p.* 546; *Beck, bot. p.* 103; *Torr. & Gr. fl. N. Am.* 1. *p.* 418. Spiræa stipulata, *Willd. enum.* 1. *p.* 542. S. stipulacea, *Pursh, fl.* 1. *p.* 343; *Bart. l. c.* 1. *t.* 6; *Cambass. in ann. sci. nat.* 1. *p.* 387. *t.* 28.

Stem 2 – 3 feet high, branching, smooth or minutely pubescent. Leaflets about as large as in the preceding species, but more cut and with coarser serratures; those of the lower and radical leaves almost pinnatifid. Stipules an inch or more in length, and of nearly the same breadth. Calyx and petals nearly as in *G. trifoliata*, but the latter rather smaller. Ovaries smooth, with 4 ovules ascending from above the base of the placenta. Ripe fruit not seen.

In the western part of the State (*David Thomas, Esq.*). The late *Dr. Cleaver*, of Philadelphia, informed me many years ago that he had found this species in the State of New-York. It is abundant west of the Allegany mountains, where it takes the place of *G. trifoliata*. Both species have nearly the same medicinal properties. See *Wood & Bache, l. c.*

TRIBE II. *DRYADEÆ. Torr. & Gr.*

Calyx valvate or often imbricate in æstivation. Stamens sometimes definite. Carpels (achenia, sometimes drupaceous) 1-seeded and indehiscent, either few or solitary, or numerous and collected into a head on a conical or hemispherical torus: ovules solitary, rarely 2, suspended or ascending. Styles lateral or terminal.—Herbs, shrubs, or rarely trees.

CONSPECTUS OF THE SUBTRIBES.

Subtribe I. EUDRYADEÆ. Calyx campanulate or turbinate, or rather flat; the æstivation valvate. Stamens numerous. Carpels numerous, dry. Seeds erect. Style terminal.—Mostly herbs.

Subtribe II. SANGUISORBEÆ. Calyx-tube indurated and contracted at the mouth; the segments valvate. Petals often wanting. Stamens few or definite. Carpels 1 – 2, rarely 3 – 4, dry: stigma often plumose. Seed suspended.—Mostly herbs.

Subtribe III. FRAGARIEÆ. Calyx flattish, valvate. Stamens numerous. Carpels numerous, dry, crowded on a conical or hemispherical (dry or fleshy) torus.—Herbs, or rarely shrubby plants.

Subtribe IV. DALIBARDEÆ. Calyx flattish, mostly imbricated. Stamens numerous. Carpels drupaceous, crowded on the conical receptacle. Styles terminal or nearly so.—Herbaceous, or mostly somewhat shrubby and often prickly plants.

Subtribe 1. EUDRYADEÆ, Torr. & Gr. *Calyx campanulate or turbinate, or rather flat, valvate in æstivation. Stamens numerous. Carpels numerous, dry: style terminal. Seed erect. Radicle inferior.— Herbs, or sometimes shrubby plants. Flowers perfect.*

6. GEUM. *Linn.*; *DC. prodr.* 2. *p.* 550. *AVENS.*

[From the Greek, *geuo*, an agreeable flavor; the roots of one species being aromatic.]

Calyx concave at the base; the border flattish, deeply 5-cleft, usually with 5 small bracteoles

alternate with the segments. Petals 5. Stamens numerous, inserted into the disk that lines the base of the calyx. Achenia numerous, crowded on the conical or cylindrical dry receptacle, caudate with the terminal persistent styles. — Perennial herbs, with the leaves (at least the lower or radical ones) pinnately divided. Flowers white, yellow or purplish.

§ 1. EUGEUM, Torr. & Gr. *Segments of the calyx reflexed. Style jointed, geniculate and contorted above the middle; the lower portion smooth, persistent, hooked at the point after the upper (usually hairy) portion falls off.*

1. GEUM VIRGINIANUM, *Linn.* *Virginian Avens.*

Radical leaves pinnate, or lyrately pinnate, or trifoliolate; cauline ones 3 – 5-foliolate, the uppermost usually undivided, incisely serrate, softly pubescent or smoothish; stipules mostly incised; peduncles elongated and diverging in fruit; bracteoles minute; petals (white) about the length of the calyx, cuneate-obovate; carpels sparingly hispid; upper joint of the style hairy at the base.— *Linn. sp.* 1. *p.* 500; *Murr. in comm. Gœtt.* 5. *p.* 30. *t.* 3; *Willd. sp.* 2. *p.* 1113; *Michx. fl.* 1. *p.* 301; *Pursh, fl.* 1. *p.* 351; *Ell. sk.* 1. *p.* 572; *Torr. fl.* 1. *p.* 493; *Bigel. fl. Bost. p.* 206; *Seringe in DC. prodr.* 2. *p.* 550; *Hook. fl. Bor.-Am.* 1. *p.* 175; *Beck, bot. p.* 101; *Darlingt. fl. Cest. p.* 301. G. album, *Gmel. syst.* 2. *p.* 861; *Willd. enum.* 1. *p.* 556; *Pursh, l. c.; Bigel. l. c.; DC. l. c., &c.*

Stem 1½ – 3 feet high, a little hairy or nearly smooth. Radical leaves on long petioles, sometimes nearly undivided, but commonly spuriously trifoliolate, or pinnately divided with 5 large segments and several very small ones; cauline ones on short petioles, the uppermost nearly sessile: leaflets broadly ovate or elliptical, 1½ – 3 inches long, usually acute. Peduncles 1 – 3 inches long, terminating the branches. Flowers at first nodding, finally erect. Calyx somewhat hairy; the segments reflexed: bracteoles subulate. Petals white or sometimes cream-color, scarcely 2 lines in length. Carpels in a roundish sessile head, bristly with a few long straight hairs: style straight and smooth below the joint; upper joint thicker than the lower, at length falling off, leaving a minute but strong hook at the summit of the lower portion. Receptacle densely hairy.

Borders of woods, thickets, etc. *Fl.* June – July. *Fr.* September.

2. GEUM STRICTUM, *Ait.* *Small-flowered Yellow Avens.*

Stem and petioles hispid; radical and lower cauline leaves interruptedly and somewhat lyrately pinnate, the leaflets cuneiform-obovate; upper cauline leaves 3 – 5-foliolate, the leaflets rhombic-ovate or oblong, acute, sharply toothed and incised; stipules large, incised; petals (yellow) roundish-oval, longer than the calyx; carpels hispid at the summit; upper joint of the style hairy towards the base.—*Ait. Kew.* (ed. 1.) 2. *p.* 207; *Willd. sp.* 2. *p.* 1113; *Pursh, fl.* 2. *p.* 351; *Bigel. fl. Bost. p.* 207; *Torr. comp. p.* 208; *Hook. fl. Bor.-Am.* 1. *p.* 175 (excl. β.); *Torr. & Gr. fl. N. Am.* 1. *p.* 421. G. Canadense, *Murr. comm. Gœtt.* 5. *p.* 33. *t.* 4 (not of *Jacq.*); *DC. prodr.* 2. *p.* 550. G. ranunculoides, *Seringe, l. c.*

Stem 2 – 4 feet high, simple, paniculate at the summit, the lower part (and sometimes the upper also, as well as the petioles) hispid with spreading or retrorse hairs. Radical and lower cauline leaves on long petioles, the upper ones nearly sessile : larger leaflets 2 inches or more in length, with scattered appressed hairs on both surfaces. Flowers in a loose dichotomous panicle, larger than in the preceding species ; the peduncles 1 – 2 inches long. Bracteoles subulate-linear, shorter than the segments of the calyx. Head of carpels sessile. Receptacle densely pubescent.

Wet meadows and swamps. July – August. Common in the northern and western parts of the State ; not found on the Hudson far below Albany.

§ 2. CARYOPHYLLATA, Tourn. *Segments of the calyx erect or spreading : style jointed, geniculated and contorted near the middle ; the upper joint mostly plumose.*

3. GEUM RIVALE, *Linn.* *Water Avens. Purple Avens.*

Stem pubescent, rather naked ; radical leaves interruptedly pinnate and lyrate, cauline ones (1 – 2) trifoliolate or 3-lobed ; flowers few, nodding ; petals broadly cuneiform-obovate, emarginate, about the length of the calyx ; carpels in a stipitate head, very hairy ; lower joint of the persistent style smooth above, the upper joint plumose.—*Linn. sp.* 1. *p.* 501 ; *Michx. fl.* 1. *p.* 301 ; *Engl. bot. t.* 106 ; *Pursh, fl.* 1. *p.* 351 ; *Torr. fl.* 1. *p.* 493 ; *Bigel. fl. Bost. p.* 206 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 422.

Rhizoma creeping. Stem 1 – 3 feet high, erect, clothed with a short soft retrorse pubescence mixed with longer hairs. Radical leaves on petioles often a foot long ; terminal leaflets broadly ovate or obovate, 2 – 4 inches in diameter. Flowers in a loose terminal panicle, an inch in diameter ; the peduncles erect in fruit. Calyx purplish : bracteoles scarcely one-third the length of the segments. Petals abruptly narrowed into a claw, dull purplish-orange, finally longer than the calyx. Carpels in a globose head, which at first is nearly sessile, but finally raised on a distinct stipe. Lower joint hispid about half its length ; upper joint plumose throughout.

Bogs and wet meadows ; northern and western parts of the State. May – June. The root or rhizoma is astringent, and, made into a syrup, is a popular medicine "for cleansing the blood." It is also said to be used as a substitute for chocolate.

§ 3. SIEVERSIA, Willd. ; R. Br. *Style not articulated, wholly persistent.*

4. GEUM TRIFLORUM, *Pursh.* *Three-flowered Purple Avens.*

Stem nearly naked, softly pubescent, about 3-flowered at the summit ; radical leaves interruptedly pinnate, the petioles hairy ; leaflets cuneiform-oblong, deeply incised and toothed ; flowers at first nodding ; pedicels finally elongated ; bracteoles lanceolate-linear, longer than the calyx segments, and about the length of the elliptical-oblong petals ; styles very long,

and filiform in fruit, plumose. — *Pursh, fl.* 1. *p.* 736; *Seringe in DC. prodr.* 2. *p.* 533; *Torr. & Gr. fl. N. Am.* 1. *p.* 423. Sieversia triflora, *R. Br. in Parry's 1st voy. app. p.* 276; *Richards. app. Frankl. journ. ed.* 2. *p.* 21; *Hook. in bot. mag. t.* 2858, *and fl. Bor.-Am.* 1. *p.* 176. S. rosea, *Graham in Edin. phil. journ.* 1831.

Rhizoma creeping, thick and brown. Stems or scapes in the flowering state only 4 – 6 inches, in fruit a foot or 15 inches high, with 2 opposite small laciniate leaves near the middle, and several others resembling an involucre at the base of the peduncles; the 2 lateral flower-stalks also furnished with similar but smaller leaflets about the middle. Radical leaves numerous: leaflets mostly 3 – 5-toothed, or 3 – 5-cleft at the summit. Flowers nodding when first expanded; the peduncles at first scarcely half an inch long, in fruit 3 – 4 inches. Calyx and involucral leaves usually of a purplish color. Petals yellowish-white tinged with purple, persistent. Styles of the mature fruit more than 2 inches long, very slender, purple, plumose with white silky hairs.

On rocks, Watertown, Jefferson county; very rare (*Dr. Crawe*). A beautiful plant when in fruit. It has not recently been found within the limits of this State.

7. WALDSTEINIA. *Willd. act. nat. cur. Berol.* 2. *p.* 106. *t.* 4. *f.* 1; *Torr. & Gr. fl. N. Am.* 1. *p.* 426.

WALDSTEINIA.

WALDSTEINIA and COMAROPSIS, *DC.; Endl.*

[Named in honor of FRANZ DE WALDSTEIN, a distinguished German botanist.]

Tube of the calyx turbinate or obconic; the limb 5-cleft, with 5 alternate, sometimes minute and deciduous bracteoles, which are occasionally wanting. Petals 5, sessile, deciduous. Stamens numerous, inserted into the throat of the calyx above the free border of the disk that lines the calyx-tube. Achenia 2 – 6, dry or somewhat fleshy, inserted on a short receptacle: styles terminal, filiform, separating from the carpel by an articulation. Seed erect. Radicle inferior.— Low perennial herbs, with a prostrate or creeping rhizoma, and mostly radical, roundish, 3 – 5-lobed or divided leaves. Scapes bracteate. Petals yellow.

1. WALDSTEINIA FRAGARIOIDES, *Tratt.* *Strawberry-like Waldsteinia.*

Leaves trifoliolate, the leaflets broadly obovate-cuneate and petiolulate, crenately toothed and incised; scapes erect, bracteate, 3 – 5-flowered; segments of the calyx shorter than the oblong petals; (bracteoles sometimes wanting); carpels 4 – 6, hairy.— *Torr. & Gr. fl. N. Am.* 1. *p.* 426. Dalibarda fragarioides, *Michx. fl.* 1. *p.* 300. *t.* 28; *Pursh, fl.* 1. *p.* 351; *Bot. mag. t.* 1567; *Torr. fl.* 1. *p.* 491; *Bigel. fl. Bost. p.* 203. Comaropsis fragarioides, *DC. prodr.* 2. *p.* 555; *Hook. fl. Bor.-Am.* 1. *p.* 177. C. Doniana, *DC. l. c.*

Rhizoma rather thick, brownish. Leaves all radical; the petioles 3 – 4 inches long: leaflets a little hairy on both sides, 1 – 1½ inch long, and often nearly as wide as long. Scapes

slender, finally longer than the leaves, with a small leafy bract below the middle, and others at the forks of the pedicels. Calyx a little pubescent; the tube conical: segments lanceolate-oblong, acute, sometimes with alternate minute bracteoles. Petals scarcely twice the length of the calyx. Stamens numerous. Carpels minute.

Woods; rather common in the northern part of the State, and not rare in the western counties, but not hitherto found in the valley of the Hudson south of Catskill. *Fl.* May – June. *Fr.* July.

Subtribe 2. SANGUISORBEÆ, Torr. & Gr. *Calyx-tube mostly indurated and contracted at the mouth; the segments valvate, or rarely imbricated in æstivation. Petals often wanting. Stamens few or definite (rarely numerous). Carpels* 1 – 2, *or rarely* 3 – 4, *dry: styles terminal or lateral: stigma often plumose. Seeds suspended, very rarely ascending. Radicle superior.—Herbs, or sometimes shrubby plants. Flowers sometimes polygamous or diœcious.*

8. SANGUISORBA. *Linn.; Endl. gen.* 6373. GREAT BURNET.

[Named from the Latin, *sanguis*, blood, and *sorbeo*, to absorb; the plant having been used to stop bleeding.]

Flowers perfect. Tube of the calyx quadrangular, with 3 bracteoles at the base; the limb 4-parted. Petals none. Stamens 4, opposite the calyx-segments: filaments often dilated upwards. Ovary solitary: style filiform, many-cleft or pencil-form. Achenium dry, included in the hardened 4-winged calyx-tube. Seed suspended.—Perennial, rarely annual herbs, with unequally pinnate leaves and foliaceous persistent stipules; the leaflets petiolulate, serrate or pinnatifid. Flowers in dense ovoid or cylindrical spikes.

1. SANGUISORBA CANADENSIS, *Linn.* *American Great Burnet.*

Perennial; spikes finally cylindrical and much elongated; stamens much longer than the calyx; filaments flattened and dilated upwards; leaflets ovate or oblong, serrate, cordate.—*Willd. sp.* 1. *p.* 654; *Michx. fl.* 1. *p.* 100; *Pursh, fl.* 1. *p.* 116; *Ell. sk.* 1. *p.* 206; *Torr. fl.* 1. *p.* 176; *Bigel. fl. Bost. p.* 62; *DC. prodr.* 2. *p.* 594; *Hook. fl. Bor.-Am.* 1. *p.* 198; *Beck, bot. p.* 115; *Darlingt. fl. Cest. p.* 106; *Torr. & Gr. fl. N. Am.* 1. *p.* 429. S. media, *Linn.; DC. l. c.; Hook. l. c.*

Stem 2 – 4 feet high, smooth, with a few erect branches. Leaflets in numerous pairs, 1 – 2 inches long, acutely serrate: petioles long, sheathing at the base. Stipules often lunate or falcate, sharply serrate, adhering to the petiole; the lower ones sometimes wanting. Spikes at first elliptical, at length cylindrical, 3 – 6 inches long; the flowers much crowded and sessile, each with 3 small persistent bracts at the base. Calyx yellowish- or greenish-white; the segments ovate, with a callous tip. Filaments very long, white, flattened and dilated

upward ; anthers small, roundish. Style a little longer than the calyx, slender : stigma large and capitate, divided into numerous narrow segments. Achenium pyriform, contained in the quadrangular, strongly winged and thickened calyx-tube.

Wet meadows ; common. August – September. A neat and rather showy plant when in flower. The root is slightly astringent and tonic.

9. AGRIMONIA. *Tourn. inst. t.* 155 ; *Endl. gen.* 3368. AGRIMONY.

[A name corrupted from *argemone*, which was applied by the Greeks to a plant supposed to cure cataract (*argema*) in the eye.]

Calyx turbinate, armed with hooked bristles on the upper part, contracted at the throat, with 2 bracteoles at the base ; the limb 5-cleft, closing in fruit. Stamens about 12, inserted with the petals into the glandular margin of the disk in the throat of the calyx. Ovaries 2 : styles terminal, exserted. Achenia 1 – 2, included in the indurated tube of the calyx. Seed suspended.— Perennial herbs, with interruptedly pinnated leaves and yellow flowers in spicate racemes. Bracts 3-cleft.

1. AGRIMONIA EUPATORIA, *Linn.* *Common Agrimony.*

Stem and petioles hairy ; leaflets 5 – 7, oblong-ovate, coarsely toothed ; stipules with a few coarse teeth ; calyx sulcate towards the base ; petals twice the length of the calyx.— *Pursh, fl.* 1. *p.* 335 ; *Engl. bot. t.* 1335 ; *Torr. fl.* 1. *p.* 473 ; *Bigel. fl. Bost. p.* 189 ; *DC. prodr.* 2. *p.* 587 ; *Hook. fl. Bor.-Am.* 1. *p.* 196 ; *Beck, bot. p.* 108 ; *Darlingt. fl. Cest. p.* 300 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 431.

var. *parviflora :* smoothed ; racemes more slender, with the flowers rather remote. *Hook. l. c.* (excl. syn.) ; *Torr. & Gr. l. c.* A. striata, *Michx. fl.* 1. *p.* 287. A. parviflora, *DC. l. c.*

Stem 2 – 3 feet high, simple, sometimes very hairy, often flexuous. Leaflets 1 – 2 inches long, with smaller ones intermixed, either nearly smooth or strigosely pubescent. Racemes solitary or several, wand-like, 4 – 8 inches long ; the flowers on short erect pedicels. Calyx with 2 small 3-toothed bracteoles at the base ; the upper part surrounded with hooked bristles. Petals oval. Achenes often solitary, in the bottom of the hardened calyx-tube.

Borders of woods, fields, etc. ; very common. The root of Agrimony, which is sweet-scented, was formerly in repute as a tonic and deobstruent. The whole plant is sometimes used for dyeing a nankeen color.

Subtribe 3. FRAGARIEÆ; Torr. & Gr. *Calyx flattish, valvate in æstivation. Stamens numerous, inserted with the petals into the margin of a disk that lines the base of the calyx. Carpels numerous, dry, crowded on a conical or hemispherical (dry or fleshy) receptacle: styles lateral or nearly terminal. Seed suspended or ascending. Radicle superior.— Herbs, or very rarely shrubby plants.*

10. POTENTILLA. *Linn. gen. p.* 255; *Endl. gen.* 6363. CINQUEFOIL.

[From the Latin, *potens*, powerful; in allusion to its supposed medicinal virtues.]

Calyx concave at the base, deeply 4 – 5-cleft, with 5 alternate exterior segments or bracteoles. Petals 4 – 5, obtuse or obcordate. Ovaries collected on a flattish, persistent, dry, villous receptacle. Styles either lateral or nearly terminal, deciduous. Seed inserted next the insertion of the style: radicle superior. — Herbaceous or rarely suffruticose plants, with pinnately or palmately compound leaves. Flowers solitary or in cymes, yellow or white, rarely red.

* *Leaves palmately trifoliolate.*

1. POTENTILLA NORVEGICA, *Linn.* *Norwegian Cinquefoil.*

Annual; hairy; stem erect, at length dichotomous above; upper leaves on short petioles; leaflets oblong-obovate or lanceolate-oblong, coarsely and acutely serrate; stipules ovate-lanceolate, mostly entire; cyme leafy; pedicels elongated; petals obovate, shorter than the calyx; achenia rugose-striate.—*Linn. sp.* 1. *p.* 449; *Fl. Dan. t.* 171; *Michx. fl.* 1. *p.* 302; *Pursh, fl.* 1. *p.* 355; *Lehm. Potent. p.* 153; *Torr. fl.* 1. *p.* 396; *Bigel. fl. Bost. p.* 205; *DC. prodr.* 2. *p.* 573; *Hook. fl. Bor.-Am.* 1. *p.* 193; *Beck, bot. p.* 106; *Darlingt. fl. Cest. p.* 303; *Torr. & Gr. fl. N. Am.* 1. *p.* 436. P. Monspeliensis, *Linn.* P. hirsuta, *Michx. l. c.; Pursh, l. c.; Hook. l. c.* P. Morisoni, *DC. l. c.*

Whole plant hairy. Stem 8 – 18 inches high, sometimes almost hispid, at first nearly simple, finally more or less branched, occasionally decumbent. Lower and radical leaves petiolate: leaflets 1 – 2 inches long: petioles hispidly pilose. Flowers in a compound leafy cyme; the pedicels half an inch or more in length. Segments of the calyx ovate-oblong, acuminate. Petals pale yellow, a little emarginate. Carpels commonly marked with several strong curved wrinkles, but these are sometimes faint: style terminal or nearly so, short.

Old fields, cultivated grounds; an introduced plant in most parts of the State, but in the northern counties apparently native.

2. POTENTILLA TRIDENTATA, *Ait.* *Three-toothed Cinquefoil.*

Stems ascending, woody and creeping at the base; leaflets oblong-cuneiform, 3-toothed at the extremity, nearly smooth and somewhat shining above, pale and pubescent underneath;

stipules lanceolate; petals (white) oblong-obovate, longer than the calyx.—*Ait. Kew.* (ed. 1.) 2. *p.* 216. *t.* 9; *Michx. fl.* 1. *p.* 304; *Engl. bot. t.* 2389; *Lehm. l. c.; Torr. fl.* 1. *p.* 495; *DC. prodr.* 2. *p.* 585; *Beck, bot. p.* 106; *Torr. & Gr. fl. N. Am.* 1. *p.* 445.

Flowering stems 4 – 10 inches high, clothed with appressed hairs, sheathed at the base with the imbricated persistent petioles and stipules of former leaves. Leaflets nearly an inch long, somewhat coriaceous, mostly 3-toothed, but often 4 – 5-toothed. Flowers 6 – 8 at the summit of each stem, in a corymbose cyme. Calyx hairy; the segments a little longer than the bracteoles. Petals sometimes with a tinge of red. Carpels and receptacle villous. Style lateral. Seed ascending.

Clefts of rocks on mountains; Fishkill, Catskill and Essex mountains. A native also of Europe.

*** Leaves palmately 5-foliolate.*

3. POTENTILLA CANADENSIS, *Linn.* *Common Cinquefoil. Five-finger.*

Hairy; stems sarmentose, procumbent and ascending; leaflets obovate-cuneiform, silky underneath when young, incisely serrate; pedicels axillary, solitary, elongated; bracteoles longer than the calyx-segments, and rather shorter than the broadly obovate retuse petals.—*Linn. sp.* 1. *p.* 498; *Michx. fl.* 1 *p.* 303; *Nestl. Potent. p.* 10. *t.* 5; *Pursh, fl.* 1. *p.* 354; *Lehm. Potent. p.* 118; *Ell. sk.* 1. *p.* 574; *Torr. fl.* 1. *p.* 496; *DC. prodr.* 2. *p.* 575; *Beck, bot. p.* 106; *Darlingt. fl. Cest. p.* 303; *Torr. & Gr. fl. N. Am.* 1. *p.* 443. P. pumila, *Poir. dict.* 5. *p.* 594; *Pursh, l. c.* P. simplex, *Michx. l. c.; Nestl. l. c. t.* 9 *f.* 2; *Lehm. l. c.; Ell. l. c.; Bigel. fl. Bost. p.* 204; *Beck, l. c.; Darlingt. l. c.* P. sarmentosa, *Willd. enum.* 1. *p.* 554; *Bigel. l. c.*

Root perennial. Stems at first very short and nearly erect, finally 1 – 2 feet long, sarmentose, and more or less ascending at the extremity, often several from one root. Leaves very silky-villous when young: leaflets about an inch long, the lower part entire, the upper acutely serrate or incised. Pedicels slender, longer than the leaves. Calyx hairy; segments and bracteoles lanceolate. Petals yellow; when first expanded, often a little shorter than the calyx, but usually somewhat longer. Ovaries smooth: style inserted a little below the summit. Seed suspended.

Fields and woods; very common. April – August.

This species varies considerably in appearance, according to its age, and the situation in which it grows. Early in the spring, and in open sterile places, it is very dwarfish, and clothed with white silky hairs. In this state it is the *P. pumila* of Poiret. Later in the season, when it becomes smoother and throws out prostrate runners, it is the ordinary *P. Canadensis*. Its smoother and more erect state, as it grows in woods and bushy situations, is the *P. simplex* and *P. sarmentosa* of authors.

4. POTENTILLA ARGENTEA, *Linn.* *Silver-leaved Cinquefoil.*

Stems ascending, corymbose at the summit, tomentose; leaflets oblong-cuneiform, laciniately pinnatifid or incised, entire towards the base, revolute on the margin, smooth above, white and downy underneath; flowers crowded; petals obovate, retuse, longer than the calyx. — *Linn. sp.* 1. *p.* 497; *Engl. bot. t.* 89; *Pursh, fl.* 1. *p.* 355; *Torr. fl.* 1. *p.* 497; *Bigel. fl. Bost. p.* 204; *DC. prodr.* 2. *p.* 576; *Beck, bot. p.* 106; *Torr. & Gr. fl. N. Am.* 1. *p.* 441.

Root perennial, somewhat woody. Stems at first nearly erect, finally spreading and ascending. Lower leaves petiolate; upper ones nearly sessile: leaflets variable in breadth, the under surface clothed with a dense white wool. Stipules ovate, acuminate, somewhat cut. Corymbs spreading, many-flowered; the flowers small. Bracteoles nearly as broad and long as the segments of the calyx. Petals bright yellow. Ovaries smooth: style straight, nearly terminal.

Barren hills and fields; rather common. June – September. A native also of Europe, and possibly only an introduced plant in this country.

*** *Leaves pinnate.*

5. POTENTILLA ARGUTA, *Pursh.* *Close-flowered Cinquefoil.*

Stem erect, very pubescent; the upper part, and also the peduncles and calyx, villous and viscid: radical leaves pinnately 7 – 9-foliolate, the cauline ones few, 3 – 7-foliolate; leaflets roundish-ovate, incised or doubly serrate, pubescent underneath; stipules toothed or entire; flowers in a more or less crowded cyme; petals (yellowish-white) roundish-obovate, rather longer than the calyx; disk glandular, thickened, 5-lobed.— *Pursh, fl.* 2. *p.* 636; *Richards. app. Frankl. journ. ed.* 2. *p.* 20; *Lindl. bot. reg. t.* 137; *Hook. fl. Bor.-Am.* 1. *p.* 186. *t.* 63; *Torr. & Gr. fl. N. Am.* 1. *p.* 445. P. confertiflora, *Torr. fl.* 1. *p.* 449; *Lehm. stirp. pug.* 3. *p.* 24. P. Pennsylvanica, *β.* arguta, *Torr. in ann. lyc. N. York,* 2. *p.* 197, not of *DC.* Geum agrimonioides, *Pursh, fl.* 1. *p.* 351. Boottia sylvestris, *Bigel. fl. Bost. p.* 206.

Root perennial. Stem from 18 inches to 3 feet high, simple, clothed with a brownish pubescence which is glutinous when young. Radical leaves on long peduncles: leaflets 1 – 2 inches long, often with much smaller ones at the base. Flowers aggregated in small corymbose cymes at the extremity of the peduncles. Bracteoles lanceolate, a little shorter than the oblong-acute segments of the calyx. Petals cream-color or nearly white. Stamens inserted on the edge of the 5-lobed disk at the base of the calyx. Ovaries smooth, compressed: style very thick and fusiform: stigma oblong, minute. Receptacle villous.

Rocky hills, particularly on the banks of lakes and rivers; not uncommon in the Highlands, as at West-Point and on Polybell's Island; shores of Lake Champlain; near Troy, &c. June.

The thickened styles of this species consist chiefly of large oblong cells filled with a thick yellow gummy matter, which is soluble in water. I have noticed the same structure, but with much smaller cells, in several other species of *Potentilla.*

6. POTENTILLA FRUTICOSA, *Linn.* *Shrubby Cinquefoil.*

Shrubby, much branched; leaves pinnately 5 – 7-foliolate; leaflets crowded, oblong-lanceolate, entire, hairy; petals (yellow) nearly orbicular, longer than the calyx.— *Linn. sp.* 1. *p.* 495; *Engl. bot. t.* 88; *Michx. fl.* 1. *p.* 304; *Pursh, fl.* 1. *p.* 355; *Lehm. Potent. p.* 31; *Torr. fl.* 1. *p.* 497; *DC. prodr.* 2. *p.* 579; *Hook. fl. Bor.-Am.* 1. *p.* 186; *Torr. & Gr. fl. N. Am.* 1. *p.* 445. P. floribunda, *Pursh, l. c.; Bigel. fl. Bost. p.* 203.

A shrub about 2 feet high, with reddish brown branches. Leaves very numerous, on rather short petioles: leaflets usually only 5, but sometimes 7, usually about three-fourths of an inch long, but often much larger, pale and more hairy underneath; the 3 upper ones more or less confluent: stipules scarious, very acute, pubescent. Flowers numerous, 2 or 3 at the extremity of each branch, large. Calyx-segments and bracteoles of nearly equal length; the former yellowish and broader. Disk villous. Petals about one-third longer than the calyx. Ovaries (and also the receptacle) very villous: style filiform, inserted near the base of the ovary.

Bog meadows; Orange county; Yates county (*Dr. Sartwell*). June.

7. POTENTILLA ANSERINA, *Linn.* *Silver-weed. Wild Tansey.*

Stem creeping; leaves interruptedly pinnate; larger leaflets 7 – 15 or more, oblong, pinnatifidly serrate, silvery-canescent underneath; stipules many-cleft; pedicels scape-like, solitary, as long as the leaves.—*Linn. sp.* 1. *p.* 495; *Engl. bot. t.* 861; *Michx. fl.* 1. *p.* 304; *Pursh, fl.* 1. *p.* 356; *Lehm. Potent. p.* 71; *Torr. fl.* 1. *p.* 498; *Bigel. fl. Bost. p.* 203; *DC. prodr.* 2. *p.* 582; *Hook. fl. Bor.-Am.* 1. *p.* 189; *Beck, bot. p.* 107; *Torr. & Gr. fl. N. Am.* 1. *p.* 444.

Root perennial. Stem throwing out long slender creeping stolons, which produce a tuft of leaves and one or more pedicels at each joint. Leaves sometimes very silky and white on both sides, but commonly green and nearly smooth on the upper surface and white underneath: leaflets an inch or more in length; the intermediate ones very small: petioles varying in length. Bracteoles rather shorter and narrower than the segments of the calyx. Petals bright yellow, broadly obovate, twice as long as the calyx. Ovaries smooth: style lateral, filiform. Receptacle villous.

Wet meadows, borders of ponds, etc. Shores of the Hudson; Lake Ontario; salt marshes of Long Island, &c. June – October.

11. COMARUM. *Linn. gen. p.* 257 ; *Endl. gen.* 6362. *MARSH CINQUEFOIL.*

[*Comaros* was a name given by the Greeks to a plant supposed to be the modern Arbutus.]

Calyx deeply 5-cleft, colored inside, with 5 alternate much smaller exterior segments or bracteoles. Petals 5, ovate-lanceolate, acuminate. Achenia aggregated on a large fleshy and spongy persistent hairy receptacle. Styles lateral. Seed attached near the insertion of the style, pendulous : radicle superior.—A perennial herb, creeping at the base. Leaves pinnate. Petals, stamens and styles dark-purple.

1. COMARUM PALUSTRE, *Linn.* *Common Marsh Cinquefoil.*

Engl. bot. t. 172 ; *Michx. fl.* 1. *p.* 302 ; *Pursh, fl.* 1. *p.* 156 ; *Bigel. fl. Bost. p.* 203 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 447. Potentilla palustris, *Scopoli, fl. Carn.* (ed. 2.) 1. *p.* 359, ex *Lehm. Potent. p.* 52 ; *Torr. fl.* 1. *p.* 498 ; *Hook. fl. Bor.-Am.* 1. *p.* 187. P. Comarum, *Nest. Pot. p.* 36 ; *DC. prodr.* 2. *p.* 583.

Stem 1 – 2 feet high, nearly simple, smoothish below, pubescent with short appressed hairs above. Leaves petiolate : leaflets 5 – 7, approximate, lanceolate-oblong, rather obtuse, acutely serrate, whitish underneath, green and smooth above. Stipules ovate ; the upper ones partly free, the lower ones wholly adnate to the petiole. Flowers somewhat corymbose at the summit of the stem. Segments of the calyx ovate, acuminate, nearly twice as long as the lanceolate bracteoles. Petals scarcely half the length of the calyx. Receptacle, when mature, large and spongy, somewhat resembling a strawberry, covered by the calyx.

Sphagnous swamps, northern and western counties ; common. June – July.

12. FRAGARIA. *Tourn. ; Linn. gen. p.* 255 ; *Endl. gen.* 3361. *STRAWBERRY.*

[Named from the Latin, *fragrans*, odorous ; on account of its fragrant fruit.]

Calyx and corolla as in POTENTILLA. Achenia scattered on the large pulpy or succulent receptacle. Styles lateral. Seed inserted next the base of the style, ascending : radicle superior. — Perennial stoloniferous herbs, with trifoliolate leaves ; the leaflets coarsely serrated. Scapes cymosely several-flowered. Petals white. Receptacle red, edible when ripe.

1. FRAGARIA VIRGINIANA, *Ehrh.* *Wild Strawberry.*

Fruit roundish-ovoid, the achenia imbedded in the deeply pitted receptacle ; calyx spreading in fruit ; peduncles commonly shorter than the leaves.—*Willd. sp.* 2. *p.* 1091 ; *Pursh, fl.* 1. *p.* 397 ; *Torr. fl.* 1. *p.* 590 (in part) ; *Bigel. fl. Bost. p.* 202 ? ; *DC. prodr.* 2. *p.* 570 ; *Hook. fl. Bor.-Am.* 1. *p.* 184 ; *Darlingt. fl. Cest. p.* 304 ? ; *Torr. & Gr. fl. N. Am.* 1. *p.* 447. F. Canadensis, *Michx. fl.* 1. *p.* 299.

Rhizoma short, throwing up a tuft of leaves and scapes, and producing numerous long slender stolons, which become new plants. Leaflets broadly oval or obovate, 1 – 2 inches or more in length, smoothish above, slightly hairy underneath: petioles 2 – 6 inches long, villous; the hairs appressed, spreading or reversed. Scapes 4 – 7-flowered, sometimes forked at the summit, and then bearing a large foliaceous bract or leaflet at the bifurcation; the direction of the hairs variable. Calyx hairy: segments ovate, acuminate: bracteoles a little shorter, linear-lanceolate. Petals roundish, a little longer than the calyx. Receptacle usually roundish-ovoid, sometimes rather conical, scarlet; the pits on its surface so deep that the achenia are more than half imbedded.

Fields and rocky places; common in most parts of the State, but rare in the neighborhood of New-York and on Long Island. April – June.

2. FRAGARIA VESCA, *Linn.* *Wild Strawberry.*

Fruit conical or hemispherical, the achenia superficial; calyx much spreading or reflexed in fruit; peduncles commonly longer than the leaves. — *Engl. bot. t.* 1524; *Pursh, fl.* 1. *p.* 357; *DC. prodr.* 2. *p.* 569; *Hook. fl. Bor.-Am.* 1. *p.* 184; *Torr. & Gr. fl. N. Am.* 1. *p.* 448.

Resembles the preceding, but produces fewer and less slender runners, the leaves with smaller serratures; the flowers are nearly twice as large, the segments of the calyx narrower, and the fruit especially differs in the achenia not being immersed in little pits upon the surface.

Fields and meadows, and sometimes on rocks; very common around New-York, on Long Island, and in the valley of the Hudson, but also found in most other parts of the State, generally confounded with the preceding under the name of *Wild Strawberry*. It seems to be indigenous.

Subtribe 4. DALIBARDEÆ, Torr. & Gr. *Calyx flattish, 5-parted, mostly imbricate in æstivation. Petals deciduous. Stamens numerous, inserted into the border of the disk. Carpels few, dry, and seated at the bottom of the calyx; or drupaceous, juicy, and crowded on a conical receptacle: ovules 2, collateral: styles terminal or nearly so. Seed suspended. Radicle superior.— Herbaceous or mostly somewhat shrubby, often prickly plants.*

13. DALIBARDA. *Linn.; Richard in Nestl. Pot. p.* 16. *t.* 1; *Endl. gen.* 6359.

DALIBARDA.

[In honor of DENIS DALIBARD, a French botanist of the last century.]

Calyx concave at the base, deeply 5 – 6-parted, without bracteoles; the segments imbricated in æstivation; 3 of them larger, and 3 – 5-toothed or serrate. Petals 5, sessile. Ovaries 5 – 10. Achenia dry; the endocarp cartilaginous, sessile in the bottom of the calyx. — Small perennial herbs, with creeping stems and simple roundish-cordate leaves. Scapes 1 – 2-flowered. Petals white.

1. DALIBARDA REPENS, *Linn.* *Creeping Dalibarda.*

Leaves obtusely crenate-dentate; stipules laciniate; sepals not bristly. — *Linn. sp.* 1. *p.* 491; *Pursh, fl.* 1. *p.* 350; *Torr. fl.* 1. *p.* 491; *Bigel. fl. Bost. p.* 202; *DC. prodr.* 2. *p.* 564; *Hook. fl. Bor.-Am.* 1. *p.* 184; *Beck, bot. p.* 104; *Torr. & Gr. fl. N. Am.* 1. *p.* 449. D. violæoides, *Michx. fl.* 1. *p.* 299. t. 27. Rubus Dalibarda, *Linn. sp. ed.* 2; *Smith, ic. ined. t.* 20; *Willd. sp.* 2. *p.* 1090.

Stem with short rooting joints. Leaves 1 – 2 inches in diameter, strigosely hairy and fringed, with a deep and often closed sinus at the base: petioles 1 – 2 inches long; the hairs reflexed. Calyx more or less hairy, almost hispid at the base: sepals oblong. Petals obovate-oblong, obtuse, about twice as long as the calyx. Stamens 40 or 50: filaments slender, deciduous. Achenia white, oblong, rather obtuse, hairy when young, slightly pubescent when mature, a little wrinkled transversely. Receptacle not elevated.

Moist shady places; common in the northern and western counties; not found south of Catskill. June – August.

14. RUBUS. *Tourn.; Endl. gen.* 6360. *RASPBERRY,* and *BLACKBERRY.*

[Supposed to be derived from the Celtic word *rub,* which signifies red; the color of the fruit in many of the species.]

Calyx concave or flattish at the base, 5-parted; the segments mostly imbricate in æstivation. Petals 5. Achenia numerous (rarely few), pulpy and drupaceous, aggregated on a conical or cylindrical spongy receptacle, either persistent or deciduous. — Perennial, mostly suffruticose or shrubby plants, with erect or procumbent mostly prickly and biennial stems. Leaves pinnately or pedately compound, often simple. Flowers white or reddish; terminal ones opening first. Fruit eatable.

§ 1. (Raspberry.) *Carpels forming a somewhat hemispherical fruit, concave underneath, and falling away from the dry receptacle when ripe; sometimes few in number, and falling away separately.*

1. RUBUS ODORATUS, *Linn.* *Flowering Raspberry.*

Stem suffruticose, without prickles; peduncles, petioles and calyx hispid with viscid glandular hairs; leaves simple, large, 3 – 5-lobed, the lobes acuminate, unequally and finely toothed with mucronate serratures; stipules lanceolate, nearly free; peduncles many-flowered, compound; flowers very large; sepals appendiculate with a very long cusp, shorter than the roundish (purple) petals; fruit very broad and flat. — *Linn. sp.* 1. *p.* 194; *Michx. fl.* 1. *p.* 297; *Bot. mag. t.* 323; *Pursh, fl.* 1. *p.* 348; *Ell. sk.* 1. *p.* 570; *Bart. fl. N. Am.* 2. *t.* 42; *Torr. fl.* 1. *p.* 490; *Bigel. fl. Bost. p.* 201; *DC. prodr.* 2. *p.* 566; *Audub. birds of America, t.* 133; *Hook. fl. Bor.-Am.* 1. *p.* 183; *Beck, bot. p.* 104; *Darlingt. fl. Cest. p.* 309; *Torr. & Gr. fl. N. Am.* 1. *p.* 450.

Stem 3 – 5 feet high; the younger branches, as well as the petioles, peduncles and calyx, particularly the latter, covered with roughish glandular hairs which secrete a viscid matter. Leaves 4 – 8 inches in diameter, cordate, the upper ones 3-lobed, the lower 5-lobed; middle lobe prolonged. Flowers 2 inches in diameter. Sepals ovate, the point abruptly drawn out into a long narrow appendage. Petals of a beautiful purplish rose-color. Fruit large but thin, red when mature, well flavored.

Rocky places, particularly on hill-sides; common. June – August. This showy species is often seen in cultivation.

2. RUBUS TRIFLORUS, *Richards.* *Dwarf Raspberry.*

Stem without prickles, suffrutescent at the base, ascending; the branches mostly herbaceous, often long, slender and prostrate; leaves 3- (sometimes pedately 5-) foliate, on slender petioles; leaflets membranaceous, rhombic-ovate, acute at both ends, nearly smooth, coarsely and doubly serrate, or sometimes incised; stipules ovate, entire; peduncles terminal, 1 – 3-flowered, the pedicels elongated; sepals 5 – 7, lanceolate, glandularly pubescent, at length reflexed, rather shorter than the spatulate-oblong erect (white) petals; fruit small, red. — *Richards. in app. Frankl. journ. ed.* 2. *p.* 19; *Hook. fl. Bor.-Am.* 1. *p.* 181. *t.* 62; *Torr. & Gr. fl. N. Am.* 1. *p.* 452. R. saxatilis, *β.* Canadensis, *Michx. fl.* 1. *p.* 298. R. saxatilis, *Bigel. fl. Bost. p.* 201. R. saxatilis, *β.* Americanus, *DC. prodr.* 2. *p.* 565. R. Canadensis, *Torr. fl.* 1. *p.* 483, not of *Linn.* Cylactis montana, *Raf. in Sill. journ.* 1. *p.* 377.

Stem woody below; the flowering branches 6 – 10 inches high, and ascending; the sterile ones prostrate, and often 12 – 18 inches long, nearly smooth below, pubescent above. Leaflets 1 – 2 inches long; the terminal one on a short stalk. Flowers small. Calyx often 6 – 7-cleft. Petals sometimes one-third longer than the calyx. Fruit reddish purple, usually of few, but sometimes of numerous grains, sour, but having a distinct raspberry flavor.

Swamps and moist woods, but sometimes in rather dry situations; rather common. *Fl.* June. *Fr.* August.

3. RUBUS STRIGOSUS, *Michx.* *Red Wild Raspberry.*

Erect, suffruticose, armed with straight spreading rigid bristles (some of which become weak hooked prickles) which are glandular when young; leaves pinnately 3 – 5-foliolate; leaflets oblong-ovate, acuminate, incisely serrate, whitish-tomentose underneath; stipules small, setaceous; peduncles 4 – 6-flowered; petals obovate-oblong, erect, as long as the spreading sepals; fruit light red. — *Michx. fl.* 1. *p.* 297; *Pursh, fl.* 1. *p.* 346; *Torr. fl.* 1. *p.* 488; *Bigel. fl. Bost. p.* 198; *Hook. fl. Bor.-Am.* 1. *p.* 177; *Beck, bot. p.* 104; *Torr. & Gr. fl. N. Am.* 1. *p.* 453. R. Pennsylvanicus, *Poir. dict.* 6. *p.* 246. R. Idæus, *Nutt. gen.* 1. *p.* 308.

Stem much branched, light brown and shining; the lower part often nearly unarmed; upper part, petioles and peduncles hispid; the hairs at first soft and tipped with a minute gland, finally becoming indurated, but not firm enough to wound the skin. Leaflets $1\frac{1}{2}$ – 3

inches long, green and smooth above, densely pubescent and whitish underneath; the terminal one often cordate, and elevated on a partial stalk about one-third of an inch long. Flowers small, in leafy panicles at the extremity of the branches. Calyx woolly; the segments lanceolate, very acute. Petals white. Fruit bright red, very juicy, and having much the flavor and appearance of the common Garden Raspberry (*R. Idæus*), but more tender.

Rocky hill-sides; very common in the northern and western parts of the State, and also on the Hudson River above Peekskill. May.

4. RUBUS OCCIDENTALIS, *Linn.* *Black Raspberry. Thimble-berry.*

Stem shrubby, recurved, glaucous, armed with hooked prickles; leaves mostly 3-foliolate; leaflets ovate, acuminate, coarsely and doubly serrate or incised, whitish-tomentose underneath; peduncles terminal, the pedicels short, in an umbellate corymb; petals obovate-cuneate, shorter than the reflexed sepals; fruit dark purple. — *Linn. sp.* 1. *p.* 493; *Michx. fl.* 1. *p.* 297; *Pursh, fl.* 1. *p.* 347; *Torr. fl.* 1. *p.* 489; *Bigel. fl. Bost. p.* 198; *Hook. fl. Bor.-Am.* 1. *p.* 178 (excl. *β.*); *Beck, bot. p.* 102; *Darlingt. fl. Cest. p.* 306; *Torr. & Gr. fl. N. Am.* 1. *p.* 453. R. Idæus, fructu nigro, *Dill. Elth. t.* 247.

Stems long and slender, often arching and recurved to the ground, the summits taking root, covered with a fine glaucous powder which easily rubs off. Leaves sometimes 5-foliolate: leaflets 2 – 4 inches long, the under surface covered with a short very close white pubescence. Flowers small. Petals white, sometimes emarginate, erect. Fruit dark purple or almost black, the grains sometimes covered with a grayish mealy substance; pretty well flavored, but rather dry and seedy.

Borders of woods and along fences; very common. *Fl.* May. *Fr.* June – July.

§ 2. (Blackberry.) *Carpels persistent on the somewhat juicy receptacle: fruit mostly ovate or oblong.*

5. RUBUS VILLOSUS, *Ait.* *Common Blackberry.*

Stem suffruticose, erect or reclined, angular, armed with stout curved prickles; branches, peduncles and lower surface of the leaves tomentose-villous and glandular; leaves trifoliolate or pedately 5-foliolate; leaflets ovate, doubly or unequally serrate; stipules linear or subulate; peduncles many-flowered, the flowers racemose; bracts many times shorter than the pedicels; sepals with an abrupt linear acumination, much shorter than the obovate-oblong spreading petals; fruit large, black.— *Ait. Kew.* (ed. 1.) 2. *p.* 210; *Michx. fl.* 2. *p.* 297; *Pursh, fl.* 1. *p.* 346; *Bigel. med. bot. t.* 38, *and fl. Bost. p.* 199; *Ell. sk.* 1. *p.* 567; *Bart. veg. mat. med. t.* 39; *Torr. fl.* 1. *p.* 487; *Hook. fl. Bor.-Am.* 1. *p.* 179; *Beck, bot. p.* 103; *Darlingt. fl. Cest. p.* 307; *Torr. & Gr. fl. N. Am.* 1. *p.* 454.

var. *frondosus:* much less glandular, smoother; stems erect or inclined; leaflets incisely serrate; flowers fewer, corymbose, with leafy bracts. *Torr. fl. l. c.; Torr. & Gr. l. c.* R. frondosus, *Bigel. l. c.; Beck, l. c.*

var. *humifusus:* stems procumbent or trailing; leaves smaller; peduncles 1 – 5-flowered. *Torr. & Gr. l. c.*

Stems 4 – 8 feet long, and erect or reclined when growing along fences, in bushy places, or in woods, but usually prostrate or trailing in open fields, armed (as well as the petioles and under surface of the midrib) with strong prickles; the younger branches and peduncles clothed with a villous pubescence, which is usually mixed with glandular hairs. Leaves mostly trifoliolate, with the terminal leaflet on a long stalk; but often, particularly in vigorous shoots, there are 5 leaflets, three or all of which are on long partial footstalks: leaflets 2 – 5 inches long, often cordate at the base, usually acuminate. Racemes (in the common large upright forms) oblong, loose, 10 – 30-flowered, the upper flowers commonly opening first; in the other varieties, few-flowered, or even reduced to solitary flowers. Pedicels 1 – 2 inches long. Sepals abruptly contracted at the summit into a long narrow point. Petals nearly an inch long, often almost lanceolate. Fruit ovoid-oblong or nearly cylindrical, half an inch to an inch in length, black and shining, very juicy and sweet when ripe.

A very common plant throughout the United States. *Fl.* May – June. *Fr.* July – August. It varies much in its appearance according to its place of growth; the prostrate and trailing state of it, as found in open fields, being very unlike its upright form as seen along fences and in thickets; yet the two often pass into each other. The ripe fruit is very wholesome, and an infusion of the astringent root is a popular remedy for diarrhœa.

6. Rubus Canadensis, *Linn.* *Low Blackberry. Dewberry.*

Stem shrubby, ascending at the base, trailing or procumbent, somewhat prickly; leaves trifoliolate or pedately 5-foliolate, smooth or pubescent; leaflets rhombic-ovate or almost lanceolate, mostly acute or acuminate, membranaceous, sharply and unequally serrate, often somewhat incised; stipules linear, entire or serrate; flowers racemose or somewhat corymbose, with leafy bracts, the lower peduncles distant, the upper crowded; petals obovate, twice the length of the mucronate sepals; fruit very large, black. — *Linn. sp.* 1. *p.* 494; *DC. prodr.* 2. *p.* 564; *Torr. & Gr. fl. N. Am.* 1. *p.* 454. R. procumbens, *Muhl. cat.* R. trivialis, *Pursh, fl.* 1. *p.* 347 (not of *Michx.*); *Torr. fl.* 1. *p.* 489; *Bigel. fl. Bost. p.* 200; *Hook. fl. Bor.-Am.* 1. *p.* 180; *Darlingt. fl. Cest. p.* 308. R. flagellaris, *Willd. enum.* 1. *p.* 549; *DC. l. c.*

Stems 4 – 8 feet long, slender, often several from the same root, which sometimes ascend a foot or more, and then trail along the ground in different directions, shooting up at intervals leafy tufts or branches 2 – 6 inches high. Leaflets 1 – 2 inches long; lateral ones sessile; terminal one on a distinct footstalk. Flowers few (sometimes solitary), in a loose leafy raceme or corymb, terminating the short branches, nearly as large as those of *R. villosus*. Fruit oblong or roundish, often three-fourths of an inch in diameter, very juicy and sweet when mature.

Rocky barren fields; common. *Fl.* May. *Fr.* July August.

This species much resembles the smoother and prostrate variety of *R. villosus*, so that they cannot easily be distinguished. The fruit ripens earlier, and is usually larger and sweeter than in the latter.

7. RUBUS HISPIDUS, *Linn.* *Running Swamp Blackberry.*

Stems slender, prostrate, somewhat shrubby, clothed with retrorse bristles or weak prickles; leaves mostly trifoliolate, somewhat persistent; leaflets rather coriaceous, obovate, commonly obtuse, unequally serrate, smooth and shining; stipules linear; peduncles naked, corymbosely several-flowered; pedicels filiform; flowers small; petals obovate, twice as long as the spreading acute sepals; fruit small, black.—*Linn. sp.* 1. *p.* 493 (not of *DC.*); *Torr. & Gr. fl. N. Am.* 1. *p.* 456. R. obovalis, *Michx. fl.* 1. *p.* 298; *Pursh, fl.* 1. 349; *DC. prodr.* 2. *p.* 565; *Beck, bot. p.* 104. R. obovatus, *Pers. syn.* 1. *p.* 52; *Hook. fl. Bor.-Am.* 1. *p.* 180. *t.* 60; *Darlingt. fl. Cest. p.* 308. R. sempervirens, *Bigel. fl. Bost. p.* 201.

var. *setosus*: stems reclining; leaflets oblong-obovate, narrowed at the base; branchlets and pedicels bristly. *Torr. & Gr. l. c.* R. setosus, *Bigel. l. c.; DC. l c.*

Stem 2 – 3 feet or more in length, trailing and throwing up short flowering branches, more or less hispid (often very much so) with slightly curved reversed bristles, which finally harden so as to be somewhat pungent. Flowering branches 4 – 8 inches high. Leaves rarely 5-foliolate, on long slender petioles which are usually hispid like the stem: leaflets 1 – 1½ inch long, all of them on distinct footstalks, sometimes rather acute. Peduncles 3 – 5-flowered, in a more or less open corymb which is often leafy; sometimes 2 or 3 pedicels in the axils of the lower leaves. Flowers about half an inch in diameter. Sepals ovate-oblong, acute, but scarcely appendiculate. Petals white. Fruit usually consisting of a few large grains, and sour, but sweet when it grows in exposed situations.

Swamps and wet woods; sometimes in rather dry, but shady situations. *Fl.* June. *Fr.* August. In swamps the leaves are generally persistent through the winter.

8. RUBUS CUNEIFOLIUS, *Pursh.* *Sand Blackberry.*

Shrubby, low, and armed with stout recurved prickles; stems mostly erect, terete; young branches and under surface of the trifoliolate leaves pubescent-tomentose; leaflets cuneiform-obovate, rather coriaceous, with the veins prominent underneath, serrate above the middle, entire and slightly revolute near the base; stipules lanceolate; peduncles 2 – 4-flowered; petals oblong-obovate, twice as long as the woolly mucronate sepals; fruit ovoid, black.—*Pursh, fl.* 1. *p.* 347; *Nutt. gen.* 1. *p.* 308; *Ell. sk.* 1. *p.* 586; *Torr. fl.* 1. *p.* 488; *DC. prodr.* 2. *p.* 563; *Darlingt. fl. Cest. p.* 306; *Torr. & Gr. fl. N. Am.* 1. *p.* 456. R. parvifolius, *Walt. fl. Car. p.* 149, not of *Linn.*

Stem 1 – 3 feet high, much branched. Leaflets 1 – 2 inches long, all sessile, dark green above, whitish and pubescent underneath, rather obtuse, or with a very short abrupt acumination. Flowers at the extremity of the branches; the lower pedicels elongated and axillary. Petals nearly as large as in *R. villosus*. Fruit large, black, abundant and well flavored.

Sandy fields. *Fl.* May – July. *Fr.* July – August. I think this species grows in Suffolk county, Long Island. It is abundant in New-Jersey; certainly within a few miles of New-York.

TRIBE III. *ROSEÆ. Juss.*

Calyx 5-parted, spirally imbricated; the tube urceolate, contracted at the mouth, at length fleshy or baccate, including the numerous distinct ovaries. Stamens numerous. Achenia bony, hairy, inserted on the whole inner surface of the disk that lines the tube of the calyx: styles terminal, distinct, or cohering into a column above.—Shrubby and prickly plants, with pinnate leaves (in HULTHEIMIA or LOWEA, *which is hardly a distinct genus, reduced to a single leaflet), and mostly adnate stipules. Flowers large, showy and odorous.*

15. ROSA. *Tourn.; Linn.; Lindl. monogr. Ros.* (1820). ROSE.

[Derived from the Celtic word *rhos*, signifying red; the prevailing color of the flowers.]

Character same as of that of the tribe. Stipules present.

1. ROSA CAROLINA, *Linn.* *Swamp Rose.*

Stem smooth, armed with stout recurved mostly stipular prickles, not bristly; leaflets 5 – 9 (rarely 9), elliptical, often acuminate, finely serrate, not shining above, the lower surface (as well as the petiole) puberulent and pale; stipules long and narrow, the margins involute; flowers corymbose; calyx and peduncles glandular-hispid; sepals mostly entire, with foliaceous terminations; fruit depressed-globose, mostly somewhat glandular-hispid. — *Linn. spec.* (ed. 2.) 1. *p.* 703; *Pursh, fl.* 1. *p.* 341; *Ell. sk.* 1. *p.* 565; *Lindl. Ros. p.* 23. *t.* 4; *Torr. fl.* 1. *p.* 486; *DC. prodr.* 2. *p.* 605; *Hook. fl. Bor.-Am.* 1. *p.* 199; *Darlingt. fl. Cest. p.* 311; *Torr. & Gr. fl. N. Am.* 1. *p.* 458. R. corymbosa, *Ehrh. beitr.* 4. *p.* 21. R. Pennsylvanica, *Michx. fl.* 1. *p.* 296 (partly). R. Caroliniana, *Bigel. fl. Bost. p.* 197.

Stem 3 – 6 feet high, armed with short but strong broad slightly recurved prickles. Leaflets 1 – 2 inches long, acute at the base, and furnished with short partial footstalks; the petiole commonly a little prickly, as well as bristly and glandular. Flowers terminal, 4 – 7 in each corymb, crowded. Sepals ovate-lanceolate, tapering into a long slender point which is somewhat leafy at the extremity. Petals purple, nearly an inch long. Fruit dark red and shining when mature, usually hispid, seldom quite smooth.

Swamps and wet thickets; common. June – July. Sometimes the fruit is a little elongated, and acute at the base; but in such cases I have generally found that the change was produced by insects stinging the young calyx-tube, and lodging their eggs inside.

2. ROSA LUCIDA, *Ehrh.* *Dwarf Wild Rose.*

Stem armed with numerous scattered and stipular, unequal, mostly deciduous prickles; those of the flowering branches stipular, slender, straight or slightly recurved, or sometimes wanting; leaflets mostly 7 (sometimes 5 or 9), elliptical, sharply serrate, smooth and shining above; petioles somewhat glandular or hispid; stipules dilated; flowers 1 – 3; the calyx-

segments as long as the petals, with a foliaceous elongated extremity, and (as also the peduncles) glandular-hispid; tube of the calyx sometimes smooth; fruit depressed-globose, mostly smooth when mature.—*Torr. & Gr. fl. N. Am.* 1. *p.* 458. R. lucida *and* parviflora, *Ehrh.; Willd.; &c.*

var. 1: leaflets crowded, elliptical-oblong or lanceolate-ovate, acute or obtuse; the under surface scarcely pale, smooth or slightly pubescent on the veins; petioles mostly smooth. *Torr. & Gr. l. c.* R. lucida, *Ehrh. beitr.* 4. *p.* 11; *Willd. sp.* 2. *p.* 1068; "*Jacq. frag. t.* 107. *f.* 3;" *Ell. sk.* 1. *p.* 563; *Lindl. Ros. p.* 17; *DC. prodr.* 2. *p.* 602; *Hook. fl. Bor.-Am.* 1. *p.* 199. R. Carolina, *Du Roi.* R. Rapa, *Bosc; DC. l. c.* R. Caroliniana, *Michx. fl.* 1. *p.* 295. R. parviflora, *Torr. fl.* 1. *p.* 484; *Darlingt. fl. Cest. p.* 310.

var. 2: leaflets less crowded, oval, mostly very obtuse, paler but often nearly smooth underneath; petioles pubescent or smooth. *Torr. & Gr. l. c.* R. parviflora, *Ehrh. l. c.; Willd. l. c.; Lindl. Ros. p.* 20. R. lucida, *Torr. l. c.*

About 2 feet high, slender; the branches usually greenish. Prickles 3 – 5 lines long, mostly straight and horizontal, not dilated at the base; 2 at the base of each petiole often deciduous. Leaflets an inch or an inch and a quarter long (shorter in the 2nd variety): petioles often a little prickly; the pubescence not glandular. Flowers often larger than in the preceding species, seldom more than three together, and often solitary. Tube of the calyx sparingly hispid with glandular hairs; the segments also hispid towards the base, tapering into a long narrow point which is lanceolate and foliaceous at the extremity. Petals pale red. Fruit about half an inch in diameter, dark-red.

Borders of swamps; also in dry thickets, fields and hill-sides. Flowers two or three weeks earlier than the preceding species.

3. ROSA BLANDA, *Ait.* *Early Wild Rose.*

Stems and sterile branches (reddish) armed with scattered unequal straight and slender deciduous prickles, the flowering branches and petioles mostly naked; leaflets 5 – 7, oval or oblong, obtuse, unequally serrate, not shining above, pale and commonly minutely pubescent underneath, the petiole tomentose-pubescent or sometimes smooth; stipules much dilated, with entire or glandular-serrate margins; flowers 1 – 3, on short smooth peduncles; segments of the calyx shorter than the petals, the tube smooth and glaucous; fruit globose. — *Ait. Kew.* (ed. 1.) 2. *p.* 202; *Jacq. frag. t.* 105; *Willd. sp.* 2. *p.* 1065; *Lindl. Ros. p.* 25; *Hook. fl. Bor.-Am.* 1. *p.* 199; *Torr. & Gr. fl. N. Am.* 1. *p.* 460. R. Pennsylvanica, *Michx. fl.* 1. *p.* 296 (in part). R. gemella, *Willd. enum.* 1. *p.* 344 (partly). R. fraxinifolia, *Seringe in DC. prodr.* 2. *p.* 606. R. parviflora, *var.* inermis, *H. H. Eaton in Transylv. journ. med.* 1832.

Stems 1 – 3 feet high, often unarmed or with only short prickles towards the base. Leaflets usually 7. Flowers about 2 inches in diameter. Petals pale red, obcordate. Fruit crowned with the persistent connivent calyx-segments.

On rocks, and along the banks of rivers in dry situations. Northern part of the State, and on the banks of the Mohawk. Latter part of May – June.

4. Rosa rubiginosa, *Linn.* *Sweet-briar. Eglantine.*

Stem armed with scattered, very strong, recurved prickles; leaflets 5 – 7, roundish-oval or obovate, sharply serrate, the margins, lower surface and stipules more or less clothed with ferruginous glands; flowers mostly solitary on short bristly peduncles; fruit ovoid or obovate, mostly smooth.—*Linn. mant. p.* 564; *Willd. sp.* 2. *p.* 1073; *Engl. bot. t.* 991; *Torr. fl.* 1. *p.* 486; *Bigel. fl. Bost. p.* 197 (also R. myricantha of the same work?); *Beck, bot. p.* 109; *Darlingt. fl. Cest. p.* 310; *Torr. & Gr. fl. N. Am.* 1. *p.* 461. R. suaveolens, *Pursh, fl.* 1. *p.* 346; *Ell. sk.* 1. *p.* 566.

Stem 4 – 8 feet high (sometimes much taller when growing on the borders of thick woods). Prickles very broad at the base. Leaflets 6 – 8 lines long, green above, more or less russet-colored underneath and somewhat viscid, very fragrant. Flowers about an inch and a half in diameter. Peduncle with an ovate acuminate bract at the base. Calyx-segments foliaceous at the tip, entire or the exterior ones laciniate. Petals pale red, turning white, emarginate. Fruit reddish-orange when mature.

Borders of woods, road-sides, etc.; common. Introduced from Europe, but now perfectly naturalized. *Fl.* June. *Fr.* September – October.

Suborder III. Pomeæ. *Juss.*

Calyx-tube campanulate or urceolate, more or less globose in fruit, when it becomes extremely thick and fleshy, including and cohering with the ovaries. Ovaries 2 – 5 (rarely solitary), mostly cohering with each other, with two collateral ovules: styles terminal, distinct or more or less united. Fruit a pome, 1 – 5-celled; the cells sometimes spuriously divided by the inflexion of the dorsal suture. Seeds usually 1 – 2 in each carpel.— Trees or shrubs, with simple or rarely pinnated leaves. Fruit usually eatable.

16. CRATÆGUS. *Linn.; Endl. gen.* 6353. *THORN-TREE.*

[From the Greek, *kratos*, strength; in allusion to the extreme hardness of the wood in the original species.]

Calyx-tube urceolate; the limb 5-cleft. Petals orbicular, spreading. Stamens numerous. Styles 1 – 5. Pome fleshy or baccate, crowned with the teeth of the calyx, containing 1 – 5 bony one-seeded carpels; the summit contracted or closed by the disk. — Thorny shrubs or small trees, with simple often incised or lobed leaves. Flowers in terminal corymbs, rarely solitary, white or with a tinge of rose-color. Bracts linear or subulate, deciduous. Fruit sometimes eatable.

1. CRATÆGUS OXYACANTHA, *Linn.* *Hawthorn. English Thorn.*

Leaves obovate, laciniately lobed and serrate, obtusely cuneate at the base, shining, nearly smooth; segments of the calyx ovate, acute, not glandular; styles 1 – 3; fruit ovoid, small. —*Linn. sp.* 1. *p.* 497; *Engl. bot. t.* 2054; *DC. prodr.* 2. *p.* 628; *Darlingt. fl. Cest. p.* 294; *Torr. & Gr. fl. N. Am.* 1. *p.* 463.

A shrub 4 – 10 feet high; the branches armed with sharp, rather slender thorns. Leaves about an inch long, 3 – 5-lobed, decurrent at the base on the slender petiole. Corymbs many-flowered, on short branches or spurs; the pedicels smooth. Styles mostly solitary. Fruit about one-third of an inch long, purple when mature, containing usually a single thick bony carpel.

Hedges and fields; a native of Europe, but naturalized in some places. May.

2. CRATÆGUS CRUS-GALLI, *Linn.* *Cockspur Thorn.*

Leaves obovate-cuneiform, shining and smooth, coriaceous and nearly sessile, serrate; peduncles and pedicels smooth, or nearly so; calyx-segments lanceolate, a little serrate; styles 1 – 3; fruit (red) somewhat pyriform. — *Linn. sp.* 1. *p.* 476; *Michx. fl.* 1. *p.* 288; *Pursh, fl.* 1. *p.* 338; *Ell. sk.* 1. *p.* 548; *Torr. fl.* 1. *p.* 476; *Wats. dendr. t.* 56; *DC. prodr.* 2. *p.* 626; *Hook. fl. Bor.-Am.* 1. *p.* 200; *Beck, bot. p.* 111; *Darlingt. fl. Cest. p.* 290; *Torr. & Gr. fl. N. Am.* 1. *p.* 463. C. lucida, *Wang. Amer. t.* 17. *f.* 42. Mespilus lucida, *Ehrh. beitr.* 4. *p.* 17. M. Crus-galli, *Lam. dict.* 4. *p.* 441; *Willd. enum.* 1. *p.* 523.

Trunk 10 – 20 feet high, and sometimes 6 – 8 inches in diameter, but usually much smaller, much branched; the younger shoots often long and flexuous. Spines slender, 1½ – 2½ inches long. Leaves about two inches long, and varying from half an inch to more than an inch in breadth, acute or obtuse, often rounded at the summit, tapering to a long narrow base, but with scarcely any petiole; bright shining green on the upper surface. Corymb smooth. Segments of the calyx often nearly entire. Petals white. Stamens about 10. Styles mostly solitary, and seldom more than two. Fruit the size of a small cherry.

Borders of woods, thickets, along fences, etc. *Fl.* June. *Fr.* October. Used for hedges in many places, and seems to be preferable to most other thorns for this purpose. It is sometimes called *Newcastle Thorn.*

3. CRATÆGUS COCCINEA, *Linn.* *White Thorn.*

Leaves ovate or roundish-ovate (membranaceous), acutely incised or angularly lobed, sharply serrate, on long slender petioles, at length nearly smooth, often truncate or a little cordate at the base; spikes stout; corymbs and calyx at first a little pubescent, finally smoothish; styles 3 – 5; fruit large (red), globose.—*Linn. sp.* 1. *p.* 476; *Ait. Kew.* (ed. 1.) 2. *p.* 167; *Willd. sp.* 2. *p.* 1000; *Michx. fl.* 1. *p.* 288; *Ell. sk.* 1. *p.* 553; *Torr. fl.* 1. *p.* 474; *DC. prodr.* 2. *p.* 627; *Lindl. bot. reg. t.* 1957; *Bot. mag. t.* 3432; *Beck, bot. p.* 112; *Darlingt. fl. Cest. p.* 293; *Torr. & Gr. fl. N. Am.* 1. *p.* 465. C. glandulosa, *Willd. l. c.; DC. l. c.; Hook. l. c.* C. viridis, *Linn.*

A shrub or small tree 10 – 20 feet high; the spines 1 – 2 inches long, usually a little curved. Leaves about 2 inches long, cut into from 5 to 9 shallow lobes, which again are irregularly serrate, for the most part abruptly narrowed and acute at the base, but often obtuse, truncate or cordate, especially on the sterile branches, smooth, or very sparingly pubescent with short appressed hairs; the petiole often a little glandular. Flowers white, of a powerful, and, to most persons, disagreeable odor, as they are in several other species of the genus. Segments of the calyx lanceolate, denticulate and usually (as also the bracts) glandular on the margin. Stamens about 20. Fruit nearly half an inch in diameter, red or reddish-purple when ripe, eatable, but the pulp thin.

Borders of woods, in thickets, and along streams of water. *Fl.* May. *Fr.* September.

4. CRATÆGUS TOMENTOSA, *Linn.* *Black Thorn.*

Leaves ovate-elliptical or obovate, abruptly narrowed at the base into a short margined petiole, slightly lobed and incisely serrate, somewhat plicate or furrowed above from the impressed veins, smoothish above, softly pubescent especially on the veins underneath, finally almost smooth; peduncles and calyx villous-tomentose; segments of the calyx pectinately serrate and glandular; styles 2 – 3, or solitary; fruit (orange red) pyriform. — *Linn. sp.* 1. *p.* 476; *Torr. & Gr. fl. N. Am.* 1. *p.* 466. C. pyrifolia, *Ait. Kew.* (ed. 1.) 2. *p.* 168; *Willd. sp.* 2. *p.* 1001; *Pursh, fl.* 1. *p.* 337; *DC. prodr.* 2. *p.* 168; *Lindl. bot. reg. t.* 1877. C. leucophæus, *Mœnch, hort. Weiss. t.* 2 (ex *Ait.*). C. latifolia, *Pers. syn. p.* 36. C. flava, *Darlingt. fl. Cest. p.* 292? Mespilus pyrifolia, *Willd. enum.* 1. *p.* 523.

var.: leaves strongly furrowed, nearly smooth, smaller. *Torr. & Gr. l. c.*

A shrub 8 – 20 feet high. Leaves 3 – 4½ inches long and 1½ – 3 inches wide, with 5 – 7 short lobes which are irregularly and sharply serrate, the base tapering into a margined petiole, somewhat plicate above from the veins being impressed below the surface; more or less soft and tomentose underneath; but when old, smoothish, the veins often rusty. Corymb large, leafy. Segments of the calyx lanceolate, as long as the ovary. Stamens about 20, alternately longer and shorter. Styles mostly 2 or 3, sometimes solitary.

Wet thickets; western part of the State. Oneida county (*Dr. Knieskern*); Penn-Yan (*Dr. Sartwell*); near Auburn (the *variety*), (*Mr. John Carey*). *Fl.* May – June.

5. CRATÆGUS PUNCTATA, *Jacq.* *Common Thorn.*

Leaves obovate-cuneiform, decurrent into a slender petiole, entire near the base, doubly serrate and often somewhat incised towards the apex, somewhat plicate above from the impressed veins, pubescent with appressed hairs when young, especially on the veins underneath; spines often wanting; corymbs and calyx villous-pubescent; segments of the calyx entire or sparingly serrate; styles 2 – 3; fruit dull red or yellowish, globose, dotted. — *Jacq hort. Vind.* 1. *p.* 10. *t.* 28; *Ait. Kew.* (ed. 1.) 2. *p.* 169; *Michx. fl.* 1. *p.* 289; *Pursh, fl.* 1. *p.* 338; *Torr. fl.* 1. *p.* 476; *DC. prodr.* 2. *p.* 627; *Torr. & Gr. fl. N. Am.* 1. *p.* 466. C. latifolia, *DC. l. c.* Mespilus punctata, *Spach.* M. cuneifolia, *Ehrh. beitr.* 3. *p.* 21.

A tree 12 – 25 feet high; the trunk sometimes 6 – 8, and rarely 12 inches in diameter; the wood very hard. Leaves 2 – 2½ inches long, and seldom (except in the young shoots) more than an inch and a half wide, light green, rather thick; the veins very straight and prominent underneath, conspicuously impressed above. Corymbs leafy. Bracts numerous, subulate, glandular, deciduous. Segments of the calyx lanceolate, usually entire, but sometimes with a few indistinct teeth. Stamens about 20. Fruit half an inch or more in diameter, somewhat eatable when ripe.

Borders of woods, banks of rivers, etc.; common in the western part of the State, but not found below the Highlands. *Fl.* June. *Fr.* September. The broader leaved states of this species make a near approach to *C. tomentosa*. In the former the leaves are seldom lobed, and never so deeply as in the latter species.

17. PYRUS. *Linn.; Lindl. in hort. trans.* 17. *p.* 97. *APPLE, PEAR, &c.*

[The Latin name for Pear.]

PYRUS and SORBUS, *Linn.* PYRUS, MALUS and SORBUS, *Tourn.*

Calyx-tube urceolate; the limb 5-cleft. Petals roundish. Styles 5, or sometimes 2 – 3, distinct, or often united at the base. Pome fleshy or baccate, closed: carpels 2 – 5, cartilaginous or nearly membranaceous. Seeds 2 in each cell; the testa cartilaginous. — Trees or shrubs, with simple or pinnated leaves. Flowers white or rose-color, in spreading terminal simple or compound corymbose cymes. Fruit mostly eatable.

§ 1. MALUS, Tourn. *Leaves simple, not glandular: cymes simple; the pedicels mostly umbellate: petals spreading, flat: styles* 3 – 5, *united at the base: pomes mostly depressed-globose, umbilicate at the base: carpels cartilaginous.*

1. PYRUS CORONARIA, *Linn.* *Crab-apple*, or *Sweet-scented Crab-tree.*

Leaves ovate, on slender petioles, rounded or cordate at the base, serrate and somewhat incisely lobed, finally smooth; pedicels smooth; styles united and woolly at the base; fruit small, fragrant. — *Linn. sp.* 1. *p.* 480; *Ait. Kew.* (ed. 1.) 2. *p.* 473; *Pursh, fl.* 1. *p.* 340; *Torr. fl.* 1. *p.* 480; *DC. prodr.* 2. *p.* 635; *Hook. bot. mag. t.* 2009; *Lindl. bot. reg. t.* 651; *Beck, bot. p.* 113; *Darlingt. fl. Cest. p.* 296; *Torr. & Gr. fl. N. Am.* 1. *p.* 470. Malus coronaria, *Michx. fl.* 1. *p.* 292; *Michx. f. sylv.* 1. *p.* 333. *t.* 65.

A small tree 10 – 20 feet high, with a trunk 4 – 6 inches in diameter. Leaves when fully grown 2 – 3 inches long, somewhat shining above, pubescent on the veins underneath: petioles about half the length of the lamina, pubescent. Corymbs 5 – 7-flowered; the pedicels about an inch long. Flowers very fragrant. Calyx woolly inside, smooth externally; the segments lanceolate, acute. Petals pale rose-color, three-fourths of an inch long, on short claws. Fruit depressed-globose, yellowish-green, 1 – 1½ inch in diameter, hard, very acid and fragrant.

Borders of woods, etc.; western part of the State. *Fl.* May. *Fr.* September. The fruit is often used for preserves, and is also said to make good cider.

§ 2. ADENORACHIS, *DC.* (Aronia, *Pers.* partly.) *Leaves simple; the midrib glandular along the upper side: cymes compound: petals spreading, concave: styles* 3 – 5, *united at the base: pome (small) turbinate or globose: carpels somewhat cartilaginous.*

2. PYRUS ARBUTIFOLIA, *Linn. f.* *Choke-berry.*

Leaves obovate-oblong, obtuse, acute or acuminate, crenately serrulate, attenuate into a short petiole, somewhat shining above; fruit pyriform or nearly globose. — *Linn. f. suppl. p.* 256; *Hook. fl. Bor.-Am.* 1. *p.* 204; *Beck, bot. p.* 114; *Darlingt. fl. Cest. p.* 296; *Torr. & Gr. fl. N. Am.* 1. *p.* 471. Aronia arbutifolia, *Torr. fl.* 1. *p.* 476.

var. 1. *erythrocarpa:* calyx, peduncles and lower surface of the leaves, at least when young, tomentose; fruit dark red. *Hook. l. c.; Torr. & Gr. l. c.* P. arbutifolia, *Willd. sp.* 2. *p.* 1012; *Pursh, fl.* 1. *p.* 339; *Bigel. fl. Bost. p.* 195; *DC. prodr.* 2. *p.* 637. P. floribunda, *Lindl. bot. reg. t.* 1006. Mespilus arbutifolia, *Linn. sp.* 1. *p.* 478; *Michx. fl.* 1. *p.* 292 (*var.* erythrocarpa). Aronia pyrifolia *and* arbutifolia, *Pers. syn.* 2. *p.* 39. A. arbutifolia, *Ell. sk.* 1. *p.* 556.

var. 2. *melanocarpa:* calyx, peduncles and leaves smooth, or nearly so; fruit purplish-black. *Hook. l. c.; Torr. & Gr. l. c.* P. melanocarpa, *Willd. enum.* 1. *p.* 525; *DC. l. c.* P. grandifolia, *Lindl. bot. reg. t.* 1154. Mespilus arbutifolia, *var.* melanocarpa, *Michx. l. c.* Aronia melanocarpa, *Ell. l. c.* A. arbutifolia, *var.* melanocarpa, *Torr. l. c.*

A shrub 2 – 3 feet high, with slender branches. Leaves 1 – 2 inches long, sometimes obtuse or even emarginate, but commonly acute and with a slight acumination, bright green above, pale underneath, and the midrib with one or two rows of dark purple glands; the margin finely serrate, with the points of the teeth much inflexed. Corymbs numerous, 10 – 20-flowered. Flowers white. Fruit the size of a large whortleberry, sweetish, but astringent.

Thickets and woods, in both wet and dry situations; common. *Fl.* May – June. *Fr.* August – September. The *Red* and *Black Chokeberries* are certainly varieties of one species. The former sometimes occurs with the leaves smooth, and the calyx only slightly pubescent.

§ 3. SORBUS, Linn. *Leaves pinnate or pinnately lobed: cymes compound: petals spreading, flat: styles* 2 – 5, *distinct: pome (small) globose or turbinate: carpels not cartilaginous.*

3. PYRUS AMERICANA, *DC.* *Mountain Ash.*

Leaves pinnate, smooth; leaflets oblong-lanceolate, acuminate, sharply serrate with mucronate teeth; cymes large; fruit (bright red or scarlet) compound. — *DC. prodr.* 2. *p.* 637; *Hook. fl. Bor.-Am.* 1. *p.* 204; *Torr. & Gr. fl. N. Am.* 1. *p.* 472; *Wats. dendrol. Brit. t.* 54. Sorbus Americana, *Willd. enum.* 1. *p.* 520; *Pursh, fl.* 1. *p.* 341; *Torr. fl.* 1. *p.* 477; *Bigel. fl. Bost. p.* 194. S. aucuparia, *var.* Americana, *Michx. fl.* 1. *p.* 290.

A shrub or small tree, 10 – 25 feet high, and sometimes 4 – 6 inches in diameter, with a smooth bark. Leaves 8 – 12 inches or more in length: leaflets 6 – 8 pairs, 2 – 3 inches

long, pubescent when young, but smooth in the adult state. Flowers white, the corymbs very compound, 4 – 10 inches in diameter. Styles usually 3. Fruit acid, bright red or scarlet when mature.

Mountain sides, and in swamps; not found south of the Highlands. The largest trees of this species that I have ever seen, are on the high mountains of Essex county. *Fl.* Latter part of May – June. *Fr.* September. The handsome red fruit is persistent through the winter. The *Mountain Ash* of this country, or *American Service-tree* as it is sometimes called, is nearly allied to the *S. aucuparia* of Europe, and is by many botanists considered as a variety of that species.

18. AMELANCHIER. *Medic.; Lindl. in Linn. trans.* 13. *p.* 100. *JUNE-BERRY.*

[*Amelancier*, according to Clusius, is the Savoy name for *A. vulgaris*. LOUDON.]

Calyx 5-cleft. Petals ovate-oblong or oblanceolate. Stamens short. Styles 5, more or less united. Pome 3 – 5-celled; each cell imperfectly divided by a false longitudinal dissepiment, with a single seed in each division: endocarp cartilaginous.— Small trees or shrubs, with simple serrated leaves and racemose white flowers.

1. AMELANCHIER CANADENSIS, *Torr. & Gr. Common June-berry. Shad-flower.*

Leaves ovate, elliptical or oblong, more or less cordate at the base, often acuminate, very woolly when young, smooth when mature; segments of the calyx triangular-lanceolate, about the length of the tube; fruit purplish.—*Torr. & Gr. fl. N. Am.* 1. *p.* 473. Mespilus Canadensis, *Linn. sp.* 1. *p.* 478 (excl. syn. *Gron.*); *Michx. fl.* 1. *p.* 291. Pyrus Botryapium, *Linn. f. suppl. p.* 255.

var. 1. *Botryapium:* arborescent; leaves ovate-oblong, mostly somewhat cordate, acuminate and cuspidate; petals oblong, four times the length of the calyx. *Torr. & Gr. l. c.* Mespilus Canadensis, *var.* cordata, *Michx. l. c.* M. arborea, *Michx. f. sylv.* 1. *p.* 336. *t.* 66. Pyrus Botryapium, *Willd. sp.* 2. *p.* 1013; *Pursh, fl.* 1. *p.* 339. Cratægus racemosa, *Lam. dict.* 1. *p.* 74. Aronia Botryapium, *Pers. syn.* 2. *p.* 39; *Ell. sk.* 1. *p.* 357. Amelanchier Botryapium, *DC. prodr.* 2. *p.* 632; *Beck, bot. p.* 112; *Darlingt. fl. Cest. p.* 294. A. Botryapium *and* ovalis, *Hook. fl. Bor.-Am.* 1. *p.* 202.

var. 2. *oblongifolia:* shrubby; leaves oval-oblong, mucronate, the tomentum of the lower surface often remaining during the flowering; racemes shorter; petals obovate-oblong, about thrice the length of the calyx. *Torr. & Gr. l. c.* A. ovalis, *Hook. l. c.* Mespilus ovalis, *var.* obovalis, *Michx. l. c.?* Aronia Botryapium, *Torr. fl.* 1. *p.* 479.

var. 3. *rotundifolia:* shrubby or arborescent; leaves roundish-oval, often somewhat acuminate or cuspidate; racemes 6 – 10-flowered; petals narrowly oblong, rather small. *Torr. & Gr. l. c.* A. ovalis, *DC. l. c.; Darlingt. l. c.?* Mespilus Canadensis, *var.* rotundifolia, *Michx. l. c.* Pyrus ovalis, *Willd. l. c.* P. sanguinea, *Pursh, l. c.* Aronia ovalis, *Pers. l. c.*

var. 4. *oligocarpa:* shrubby; leaves mostly smooth, even when young, narrowly oval or oblong, cuspidate; racemes 2 – 4-flowered; petals obovate or obovate-oblong, 2 – 3 times the length of the calyx. *Torr. & Gr. l. c.* Mespilus Canadensis, *var.* oligocarpa, *Michx. l. c.* Pyrus sanguinea, *Pursh, l. c.?* Aronia sanguinea, *Nutt. gen.* 1. *p.* 306. Amelanchier sanguinea, *DC. l. c.; Lindl. bot. reg.* 1171; *Hook. l. c.*

Stem variable in height: in the 1st and 3rd varieties, 15 – 25 feet high, with a stem 4 – 6 inches in diameter; in the 2d and 4th varieties, a shrub from 4 to 12 feet high. Leaves 1 – 3 inches long, sharply serrate, at first in all the varieties (but much less so in 1. and 4.) densely clothed with a whitish or somewhat rusty-colored woolly pubescence, which at length disappears. Stipules linear, hairy, deciduous. Flowers appearing before the leaves are fully expanded, and so numerous that they give the bush or tree a white appearance. Bracteoles purplish, deciduous. Petals considerably larger in the var. *Botryapium* than in the others. Stamens a little longer than the calyx. Styles united nearly to the summit. Fruit the size of a large whortleberry, red until fully ripe, when it becomes rather dark purple, sweet and palatable.

Borders of woods, low grounds, etc.; common: the var. *oligocarpa* on mountains in the northern part of the State. The 2nd is the common kind in the neighborhood of New-York city. *Fl.* Latter part of April – May. *Fr.* June – July. The varieties here described often pass into each other, so that they can never be regarded as distinct species.

ORDER XXXIX. MELASTOMACEÆ. *Juss.* THE MELASTOMA TRIBE.

Sepals 4 – 6, united below into an urceolate tube which is more or less coherent with the angles of the ovary. Petals as many as the sepals, alternate with them, and inserted into the throat of the calyx; æstivation twisted. Stamens as many as the petals and alternate with them, or more commonly twice as many; those opposite the petals often sterile: anthers 1 – 2-celled, often appendaged, usually opening by one or two terminal pores; before flowering, contained in interstices between the ovary and calyx. Ovary 3 – 6-celled, with thick placentæ in the axis: ovules numerous, anatropous. Fruit capsular, and at length nearly free from the tube of the calyx, or often baccate, 3 – 6-celled. Seeds very numerous, without albumen.—Herbs, trees or shrubs, with opposite, mostly entire, ribbed leaves, destitute of stipules. Flowers terminal, solitary or cymose.

A large order, chiefly natives of tropical America.

1. RHEXIA. *Linn.*; *R. Br. in Tuckey's voy. p.* 436; *Endl. gen.* 6200. *RHEXIA.*

[A Greek name originally applied to a very different plant.]

Tube of the calyx ovoid-ventricose at the base, contracted into a neck above; the limb 4-cleft. Petals 4, obovate or roundish. Anthers 8, uniform, not appendaged, one-celled. Style somewhat declined: stigma obtuse. Capsule nearly free from the investing calyx-tube, 4-celled; the placentæ projecting into the cells. Seeds cochleate. — Perennial herbs, with ciliate, 3-nerved, mostly sessile leaves. Flowers showy, purple or yellow: petals caducous.

1. RHEXIA VIRGINICA, *Linn.* *Meadow Beauty. Deer-grass.*

Stem with winged angles, somewhat hispid; leaves oval-lanceolate, acute, serrulate-ciliate, sprinkled with bristly hairs above and on the ribs underneath; calyx hispid, the tube above the ovary longer than the segments.— *Linn. sp.* 1. *p.* 346; *Michx. fl.* 1. *p.* 222; *Bot. mag. t.* 968; *Pursh, fl.* 1. *p.* 288; *Ell. sk.* 1. *p.* 439; *Bart. fl. Am. Sept.* 1. *t.* 4; *Torr. fl.* 1. *p.* 385; *Bigel. fl. Bost. p.* 148; *DC. prodr.* 3. *p.* 121; *Beck, bot. p.* 127; *Darlingt. fl. Cest. p.* 242; *Torr. & Gr. fl. N. Am.* 1. *p.* 477.

Stem about a foot high, cymosely dichotomous at the summit, with narrow winged angles which are sparingly hispid. Leaves 1 – 2 inches long, closely sessile, acute, strongly 3-ribbed. Flowers an inch in diameter, seldom more than two or three expanded at one time. Calyx-tube beautifully urceolate; the segments lanceolate, acuminate. Petals bright purple, obliquely obovate, often hispid externally. Stamens shorter than the petals: anthers long and linear, curved; the connectivum furnished with a small subulate process at the insertion of the filament. Style longer than the filaments, a little curved above. Capsule globose, enclosed in the ventricose tube of the calyx. Seeds numerous, with a large umbilicus.

Swamps and wet sandy places; common. July – September.

ORDER XL. LYTHRACEÆ. *Juss.* THE LOOSESTRIFE TRIBE.

Sepals combined into a 4 – 7-toothed calyx; the sinuses sometimes produced into accessary teeth or processes. Petals alternate with the teeth of the calyx and inserted into its throat, very deciduous, sometimes wanting. Stamens as many as the petals, or 2 – 4 times as many, inserted into the tube of the calyx. Ovary enclosed in the calyx, but not adherent to it, 2 – 4-celled; the placentæ in the axis. Style filiform, or very short. Capsule membranaceous, often one-

celled by the obliteration of the dissepiments, many-seeded. Seeds without albumen.— Herbs, rarely shrubs or trees, with usually 4-sided branches, and opposite leaves which are destitute of stipules and dots. Flowers mostly axillary.

CONSPECTUS OF THE GENERA.

1. AMMANNIA. Calyx campanulate. Petals small. Style short. Capsule globose or ovoid.
2. LYTHRUM. Calyx cylindrical. Petals conspicuous. Style filiform. Capsule oblong.
3. DECODON. Calyx campanulate; the accessory teeth spreading and elongated. Stamens 10; five of them much exserted. Petals large and showy. Style filiform. Capsule globose.
4. CUPHEA. Calyx tubular or ventricose. Petals unequal. Stamens included. Capsule oblong.

1. AMMANNIA. *Houst.; Lam. ill. t.* 77; *Endl. gen.* 6146. *AMMANNIA.*

[Named in honor of JOHN AMMANN, a Russian botanist of the last century.]

Calyx campanulate, 4 – 5-toothed or lobed; the sinuses usually expanding into teeth or horns. Petals often wanting. Stamens as many, or sometimes twice as many as the lobes of the calyx. Ovary 2 – 4-celled. Style mostly short: stigma capitate. Capsule globose or ovoid, included in the calyx, either bursting transversely or opening by valves. Seeds numerous, attached to thick central placentæ.— Herbaceous, mostly smooth annual plants, destitute of beauty, growing in wet places, with square stems and opposite entire leaves. Flowers small, axillary, sessile or somewhat peduncled, bracteolate: petals small.

§ AMMANNIA *proper.* Arnott. *Flowers tetramerous: lobes of the calyx with as many small intermediate horn-like processes: capsule 4-celled.*

1. AMMANNIA HUMILIS, *Michx.* *Dwarf Ammannia.*

Stem branched from the base, ascending; leaves linear-oblong or lanceolate, obtuse, tapering at the base into a short petiole; flowers solitary in the axils of the leaves, closely sessile; style very short, or almost none.—*Michx. fl.* 1. *p.* 99; *Ell. sk.* 1. *p.* 218; *Torr. fl.* 1. *p.* 189; *Bigel. fl. Bost. p.* 53; *DC. prodr.* 3. *p.* 79. A. ramosior, *Linn. sp.* 1. *p.* 120; *Walt. fl. Car. p.* 88, not of *Linn. mant. and subsequent authors.*

Stems 4 – 8 inches high, sometimes almost simple, of a reddish color, nearly terete below, somewhat 4-sided above, rather slender. Flowers with 2 small subulate bracts at the base. Calyx quadrangular, 8-toothed; the 4 intermediate (accessory) teeth shorter and spreading, rather obtuse; the others erect and acute. Petals white or pale purple, orbicular, inserted opposite the shorter teeth of the calyx, caducous. Ovary turbinate. Style very short, but distinct: stigma capitate. Capsule quadrangular, short and thick; the cells many-seeded.

Wet places; about three miles from Brooklyn, on Long Island. August.

2. LYTHRUM. *Linn.; Endl. gen.* 6149. *PURPLE LOOSESTRIFE.*

[From the Greek, *luthron*, blood; in allusion to the color of the flower in some species.]

Calyx cylindrical, striate; teeth 4 – 6, short, usually with as many minute intermediate teeth or processes. Petals 4 – 6. Stamens as many or twice as many as the petals, inserted about the middle or near the base of the calyx, nearly equal. Style filiform: stigma capitate. Capsule oblong, 2-celled, many-seeded, enclosed in the calyx.—Herbs, or rarely suffruticose plants, with opposite scattered or entire leaves and purplish or white flowers.

1. LYTHRUM HYSSOPIFOLIA, *Linn.* *Common Purple Loosestrife.*

Annual; leaves alternate or sometimes opposite, linear-lanceolate, obtuse; flowers axillary, solitary; calyx obscurely striate; petals and stamens 5 – 6.— *Linn. sp.* 1. *p.* 447; *Jacq. fl. Austr. t.* 133; *Nutt. gen.* 1. *p.* 303; *DC. prodr.* 3. *p.* 81; *Torr. & Gr. fl. N. Am.* 1. *p.* 481. L. hyssopifolium, *Engl. bot. t.* 292; *Torr. fl.* 1. *p.* 472; *Bigel. fl. Bost. p.* 188.

Stem simple, sparingly branched from the base, quadrangular and somewhat margined. Flowers pale purple. *Nutt.*

In the State of New-York (*Nuttall*). I have never found this plant in the State; nor has it ever, to my knowledge, been found in New-York by any other botanist than Mr. Nuttall, who has not recorded its precise locality. It occurs in Massachusetts, and is also a native of Europe.

3. DECODON. *Gmel. syst. p.* 677; *Ell. sk.* 1. *p.* 543. *SWAMP WILLOW-HERB.*

[From the Greek, *dekas*, ten, and *odous*, a tooth; there being ten teeth to the calyx.]

Calyx campanulate, not bracteolate at the base, with 5 erect teeth, and 5 accessory spreading horn-like processes. Stamens 10 – 12; those opposite the proper teeth of the calyx very long, the alternate ones shorter. Style filiform: stigma small, undivided. Capsule included in the calyx, 3 – 4-celled. Seeds numerous, wingless.— Stem herbaceous or suffruticose, recurved, with opposite or verticillate lanceolate leaves. Flowers somewhat umbellate, on short axillary peduncles. Petals purple.

1. DECODON VERTICILLATUM, *Ell.* (Plate XXVIII.) *Swamp Willow-herb.*

Ell. sk. l. c.; DC. prodr. 3. *p.* 90; *Torr. & Gr. fl. N. Am.* 1. *p.* 483. D. aquaticus, *Gmel. l. c.* Lythrum verticillatum, *Linn. sp.* 1. *p.* 446; *Michx. fl.* 1. *p.* 281; *Pursh, fl.* 1. *p.* 334; *Torr. fl.* 1. *p.* 471; *Bigel. fl. Bost. p.* 188. Anonymos aquatica, *Walt. fl. Car. p.* 137. Nesæa verticillata, *H. B. & K. nov. gen.* 6. *p.* 191.

Stems 2 – 6 feet long, 4 – 6-sided, smooth or pubescent, recurved and sometimes taking

root at the summit. Leaves 3 – 4 inches long, on short petioles, acute, smooth above, more or less pubescent underneath, often opposite and verticillate on the same plant. Umbels 3 – 6-flowered, rather crowded so as to appear verticillate. Calyx purplish, mostly 10-toothed. Petals oblong-lanceolate, clawed; 5 of the claws twice as long as the petals, and inserted at the base of the shorter teeth of the calyx; the others inserted lower down: filaments purple: anthers small. Capsule coriaceous, dehiscing loculicidally. Seeds smooth, angular, 6 – 9 in each cell.

Swamps and borders of ponds; rather common. July – August. It is sometimes used as an emmenagogue.

4. CUPHEA. *Jacq. hort. Vindob.* 2. *p.* 83; *Endl. gen.* 6151. CUPHEA.

[Named from the Greek, *kuphos*, curved; in reference to the form of the capsule.]

Capsule tubular or ventricose, gibbous or sometimes spurred on the upper side, 6-toothed, and usually with as many accessory intermediate processes. Petals 6 – 7, unequal. Stamens about 12, unequal. Ovary with a gland at the base next the gibbosity of the calyx: style filiform: stigma somewhat capitate. Capsule 1 – 2-celled. Seeds several, mostly large, lenticular, wingless.—Herbs or suffruticose plants, with opposite or rarely verticillate leaves. Peduncles axillary or between the petioles, one- or several-flowered. Calyx colored. Petals violet or white.

1. CUPHEA VISCOSISSIMA, *Jacq.* *Viscid Cuphea.*

Annual, viscidly pubescent; stem erect, branching; leaves ovate-lanceolate, on slender petioles, rough; calyx ventricose, gibbous at the base; petals clawed. — *Jacq. l. c. t.* 177; *Michx. fl.* 1. *p.* 281; *Pursh, fl.* 1. *p.* 335; *Nutt. gen.* 1. *p.* 304; *Ell. sk.* 1. *p.* 546; *Bart. fl. Amer. Sept.* 1. *t.* 18; *Torr. fl.* 1. *p.* 472; *Beck, bot. p.* 126; *Darlingt. fl. Cest. p.* 284; *Torr. & Gr. fl. N. Am.* 1. *p.* 482.

Stem about a foot high, clothed with a viscid purplish pubescence. Leaves 1 – 2 inches long, slightly hairy; the petiole 3 – 6 inches long. Flowers solitary, pedicellate. Calyx 12-ribbed, purplish, very viscid. Petals purple, very unequal. Stamens included. Capsule opening with the calyx before maturity, and exposing the naked seeds.

Old fields and gravelly places. Northern part of the State (*Dr. M. Stevenson* and *Dr. Knieskern*); near Astoria, Long Island (*Mr. Ménard*). July – August.

ORDER XLI. ONAGRACEÆ. *Juss.* THE EVENING-PRIMROSE TRIBE.

Calyx adherent to the ovary, and produced above it into a tube; the limb 4-parted. Petals usually 4 (rarely absent). Stamens as many or twice as many as the petals, and inserted with them into the throat of the calyx. Ovary mostly 4-celled: style elongated; stigma capitate or 4-lobed. Fruit mostly capsular, with loculicidal dehiscence, or indehiscent. Seeds indefinite or solitary in each cell. Embryo straight.—Herbaceous or sometimes shrubby plants, with entire or toothed leaves. Flowers usually showy, axillary, or in terminal spikes or racemes.

TRIBE I. *ONAGREÆ. Torr. & Gr.*

Petals as many and stamens twice as many as the lobes of the calyx, regular. Pollen connected by cobweb-like threads. Ovules mostly numerous. Fruit capsular, or rarely dry and indehiscent. (*Stamens* 4 *in* LUDWIGIA, *and some of the species apetalous.*)

CONSPECTUS OF THE GENERA.

* *Stamens* 8.

1. EPILOBIUM. Calyx-tube not prolonged above the ovary. Capsule linear, 4-celled. Seeds numerous, with a tuft of hair at one extremity.
2. ŒNOTHERA. Calyx-tube prolonged above the ovary. Capsule 4-celled. Seeds numerous, naked.
3. GAURA. Calyx-tube much prolonged. Capsule mostly one-celled and indehiscent, 1 – 4-seeded.

** *Stamens* 4.

4. LUDWIGIA. Calyx-tube not prolonged. Petals often minute or wanting. Stamens opposite the lobes of the calyx. Capsule mostly short.

1. EPILOBIUM. *Linn.; Endl. gen.* 6121. *WILLOW-HERB.*

[From the Greek, *epi*, upon, and *lobos*, a pod; the flower growing at the top of the seed-vessel.]

Tube of the calyx not produced above the ovary; the limb 4-parted, deciduous. Petals 4. Stamens 8: anthers elliptical or roundish. Stigma 4-lobed; the lobes spreading, or cohering, and then clavate. Capsule linear, 4-sided, 4-celled, 4-valved. Seeds numerous, crowned with a tuft of hairs.—Perennial herbs, with alternate or opposite nearly sessile leaves. Flowers rose-color, purple or white, nodding before expansion.

* *Petals spreading: stamens and style declined: stigma* 4-*lobed.*

1. EPILOBIUM ANGUSTIFOLIUM, *Linn.* *Rose-bay Willow-herb.*

Stem erect, simple, mostly smooth; leaves scattered, lanceolate, remotely denticulate, the veins pellucid; flowers (large) in a long spicate raceme; petals clawed, obovate.—*Linn. sp.* 1. *p.* 347; *Engl. bot. t.* 1947; *Michx. fl.* 1. *p.* 223; *Pursh, fl.* 1. *p.* 259; *Bigel. fl. Bost.*

p. 146 ; *Hook. fl. Bor.-Am.* 1. *p.* 205 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 487. E. spicatum, *Lam. dict.* 2. *p.* 273 ; *Torr. fl.* 1. *p.* 391 ; *DC. prodr.* 3. *p.* 40 ; *Beck, bot. p.* 116.

Stem 3 – 5 feet high. Leaves lanceolate or narrowly lanceolate, glaucous underneath, nearly sessile, with minute very remote serratures or glandular teeth. Raceme often a foot or more in length. Pedicels bracteate at the base, 4 – 8 lines long, slender, thickened upwards. Limb of the calyx cleft nearly down to the ovary : segments linear-lanceolate, acute, spreading, purplish. Petals more than half an inch long, of a light bluish purple. Stamens unequal ; the 4 alternate ones shorter. Stigma with 4 narrow spreading lobes. Capsule an inch or more in length, purplish-hoary. Seeds in two rows ; the pappus long and silky.

Fields, and newly cleared land ; common. July. A very showy plant.

*** Petals, stamens and style erect : stigma undivided.— Flowers small.*

2. EPILOBIUM ALPINUM, *Linn.* *Alpine Willow-herb.*

Stem creeping at the base, usually marked with 2 pubescent lines ; leaves opposite, ovate or ovate-oblong, slightly petioled, denticulate, smooth ; stigma entire ; capsules mostly pedicellate.— *Linn. sp.* 1. *p.* 348 ; *Bigel. fl. Bost. p.* 147 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 488.

Perennial. Stem 6 – 10 inches high, slender, simple. Leaves mostly ovate-oblong, the lower ones opposite and about an inch long, upper ones alternate and smaller ; the margin glandularly denticulate. Flowers small (about as large as in *E. coloratum*). Calyx campanulate. Petals pale rose-color. Fruit pedicellate.

High mountains of Essex county. July – August. A native also of Europe.

3. EPILOBIUM COLORATUM, *Muhl.* *Purple-leaved Willow-herb.*

Stem nearly terete, erect, much branched, more or less pubescent ; leaves mostly opposite, lanceolate, with fine tooth-like callous serratures, the veins often purplish ; petals 2-cleft ; stigma clavate ; capsules on short pedicels, slightly pubescent. — *Muhl. in Willd. enum.* 1. *p.* 411 ; *Nutt. gen.* 1. *p.* 250 ; *Torr. fl.* 1. *p.* 392 ; *Bigel. fl. Bost. p.* 147 ; *Hook. fl. Bor.-Am.* 1. *p.* 206 ; *Beck, bot. p.* 116 ; *Darlingt. fl. Cest. p.* 239 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 489. E. tetragonum, *Pursh, fl.* 1. *p.* 259 ; *Ell. sk.* 1. *p.* 445.

Perennial. Stem 1 – 3 feet high, late in the season very much branched, a little pubescent or nearly smooth, mostly of a purplish color ; the branches marked by four narrow lines, two of them slightly elevated and decurrent from the midrib of the leaves ; the others intermediate, pubescent. Leaves 3 – 6 inches long, acute, smoothish, marked with very minute roundish and narrow dots. Flowers numerous, terminating the branchlets, 2 – 3 lines in diameter. Sepals lanceolate, rather shorter than the corolla. Petals pale purple, or sometimes nearly white. Stamens unequal. Style scarcely included. Capsule about 2 inches long when mature.

Wet thickets ; common, except in the western part of the State, where I have not found it. July – August. Differs from *E. tetragonum*, which it much resembles, in its round stem, larger flowers, and more deeply cleft petals.

4. EPILOBIUM MOLLE, *Torr.* *Soft Willow-herb.*

Whole plant clothed with a soft dense velvety pubescence; stem terete, straight and erect; leaves alternate and opposite, crowded, sessile, lanceolate or oblong-linear, remotely repand-denticulate or entire; petals deeply emarginate, twice the length of the calyx; stigma large and thick, somewhat turbinate; capsules elongated, on longish pedicels.—*Torr. fl.* 1. *p.* 393; *Torr. & Gr. fl. N. Am.* 1. *p.* 390. E. strictum, *Muhl. cat. p.* 39; *Spreng. syst.* 2. *p.* 233; *Beck, bot. p.* 117.

Perennial. Stem 1½ – 2 feet high, slender, nearly simple or somewhat branched. Leaves 1 – 1½ inch long and 2 – 4 lines wide, closely sessile, mostly fasciculate in the axils; the margin with remote obscure glandular teeth. Flowers axillary in the upper part of the stem, 2 – 3 lines in diameter. Segments of the calyx lanceolate. Petals pale purple or rose-color. Stamens included. Capsules about 2½ inches long when mature, tapering at the base into a pedicel half an inch or more in length.

Sphagnous swamps in the northern and western part of the State. August – September.

5. EPILOBIUM PALUSTRE, *Linn.* *Narrow-leaved Willow-herb.*

Stem terete, clothed with a minute crisped pubescence; leaves lanceolate, rather acute, attenuate at the base, nearly sessile, entire or obscurely denticulate, the lower ones opposite; petals rose-color, about twice the length of the calyx; stigma clavate; capsules pubescent, on short pedicels.—*Linn. sp.* 1. *p.* 348; *Lehm. in Hook. fl. Bor.-Am.* 1. *p.* 207.

var. *albiflorum:* stem slender, at first simple; leaves narrowly linear, slightly denticulate or entire; capsules canescent.—*Lehm. l. c.; Torr. & Gr. fl. N. Am.* 1. *p.* 490. E. palustre, *var.* albescens, *Wahl. fl. Suec.* 1. *p.* 234. E. oliganthum, *Michx. fl.* 1. *p.* 223; *DC. prodr.* 3. *p.* 43. E. rosmarinifolium, *Pursh, fl.* 1. *p.* 259; *Torr. fl.* 1. *p.* 392, not of *DC.* E. lineare, *Muhl. cat. p.* 39; *Bigel. fl. Bost. p.* 147. E. squamatum, *Nutt. gen.* 1. *p.* 250; *DC. l. c.; Beck, bot. p.* 116; *Darlingt. fl. Cest. p.* 239.

Perennial. Stem very slender, 1 – 2 feet high, finally branching at the summit; the pubescence very short, but woolly or crisped. Leaves about an inch long, revolute on the margin, a little pubescent on both sides. Flowers about as large as in *E. coloratum*, pale purple or nearly white. Capsules hoary-pubescent, an inch and a half long.

Sphagnous swamps; rather rare. August.

2. ŒNOTHERA. *Linn.; Torr. & Gr. fl. N. Am.* 1. *p.* 491. *EVENING PRIMROSE.*

[Named from the Greek, *oinos*, wine, and *thero*, to hunt; the roots being incentives to wine-drinking.]

Tube of the calyx prolonged above the ovary, deciduous: segments 4, reflexed. Petals 4, equal, obcordate or obovate, scarcely clawed. Stamens 8. Ovary 4-celled, with numerous ovules in each cell. Stigma 4-lobed or capitate. Capsule 4-valved, many-seeded; the dissepiments often disappearing. Seeds naked.— Herbs or rarely suffrutescent plants, with alternate leaves. Flowers showy, often opening towards evening.

§. EUŒNOTHERA. *Stigma 4-parted; the lobes elongated: anthers linear, fixed by the middle: petals yellow, sometimes turning to rose-color in fading.*

1. ŒNOTHERA BIENNIS, *Linn.* *Common Evening Primrose.*

Stem erect, mostly simple, usually hairy; leaves ovate-lanceolate, repandly denticulate, acute, pubescent; flowers in a terminal somewhat leafy spike; tube of the calyx much longer than the ovary, and mostly twice as long as the calyx; capsules sessile, oblong, slightly tapering upwards, obscurely 4-angled. — *Linn. sp.* 1. *p.* 346; *Michx. fl.* 1. *p.* 224; *Engl. bot. t.* 1534; *Pursh, fl.* 1. *p.* 261; *Ell. sk.* 1. *p.* 441; *Torr. fl.* 1. *p.* 387; *Bigel. fl. Bost. p.* 148; *DC. prodr.* 3. *p.* 46; *Beck, bot. p.* 118; *Darlingt. fl. Cest. p.* 240.

Root annual or biennial. Stem 2 – 5 feet high, more or less hairy and sometimes rough, branching, terete. Leaves 3 – 6 inches long, tapering at each end; the lower ones on short petioles. Spike 3 – 12 inches long. Calyx yellowish-green; the tube above the ovary 1 – 2 inches long: segments at first more or less cohering, splitting on one side by the expansion of the flower, finally more or less distinct, less than half the length of the tube. Petals variable in size, usually about three-fourths of an inch long, but sometimes nearly twice as large, obcordate. Stamens shorter than the petals, a little unequal: anthers versatile. Style filiform: lobes of the stigma spreading. Capsule somewhat cylindrical, about an inch long. Seeds in two rows in each cell.

Fields and moist meadows; common. July – September. This plant has become naturalized in many parts of Europe. It presents several varieties, which have been regarded as species by some botanists; such as *Œ. muricata*, Murr., *grandiflora*, Ait., *parviflora*, Linn., and *cruciata*, Nutt.

2. ŒNOTHERA FRUTICOSA, *Linn.* *Sundrops.*

Hairy or almost smooth; stem erect; leaves lanceolate or oblong-lanceolate, repandly denticulate; corymb peduncled, naked below, elongated in fruit; tube of the calyx much longer than the ovary; petals broadly obcordate, longer than the acuminate calyx-segments and stamens; capsule oblong-clavate, 4-winged, with intermediate ribs, longer than the pedi-

cels.— *Linn. sp.* 1. *p.* 456; *Bot. mag. t.* 332; *Pursh, fl.* 1. *p.* 262; *Nutt. gen.* 1. *p.* 247; *Ell. sk.* 1. *p.* 442; *Torr. fl.* 1. *p.* 389; *DC. prodr.* 3. *p.* 50; *Hook. fl. Bor.-Am.* 1. *p.* 212, *and bot. mag.* 3548; *Beck, bot. p.* 118; *Darlingt. fl. Cest. p.* 241; *Torr. & Gr. fl. N. Am.* 1. *p.* 496. Œ. hybrida, *Michx. fl.* 1. *p.* 225. Œ. ambigua, *Spreng. syst.* 2. *p.* 229; *DC. l. c.* Œ. incana, *Nutt. l. c.*

Biennial? Stem 1½ – 2 feet high, rigid, mostly purplish, with slender erect branches, variable in pubescence, sometimes villous, and often nearly smooth. Leaves 1½ – 3 inches long and 3 – 7 lines wide; the lower ones with short petioles. Flowers about an inch and a half in diameter, in corymbose spikes at the summit of the stem and branches. Calyx purplish; the tube about an inch long: segments acuminate, more or less united. Petals pale yellow, broadly obcordate. Style longer than the stamens, and shorter than the corolla. Capsule about twice as long as the pedicels; the angles distinctly winged, and decurrent on the pedicel: intermediate ribs rounded, slightly projecting.

Fields, meadows and borders of woods; rather common. June – July. Variable in size, breadth of the leaves and pubescence, according to the soil, degree of exposure, etc. It appears to be only a biennial.

3. ŒNOTHERA LINEARIS, *Michx.* *Narrow-leaved Evening Primrose.*

Stem erect, slender; leaves linear or narrowly lanceolate, rather obtuse, remotely denticulate or entire; flowers somewhat corymbose at the extremity of the branches; tube of the calyx longer than the ovary, but scarcely exceeding the segments; petals longer than the stamens and calyx-segments; capsules clavate-turbinate or obovate, mostly pubescent or canescent, with the alternate angles slightly winged above, tapering at the base into a slender pedicel. — *Michx. fl.* 1. *p.* 225; *Pursh, fl.* 1. *p.* 262; *Nutt. gen.* 1. *p.* 248; *Torr. & Gr. fl. N. Am.* 1. *p.* 497.

var.: stems often decumbent at the base, finally much branched; leaves smaller. *Torr. & Gr. l. c.*

About a foot high, often decumbent at the base; the whole plant more or less canescently puberulent. Leaves varying from linear to linear-oblong, tapering at the base, and slightly petioled. Flowers twice as large as in *Œ. pumila.*

Dry sandy fields, Suffolk county, Long Island. August.

4. ŒNOTHERA CHRYSANTHA, *Michx.* *Golden-flowered Evening Primrose.*

Pubescent; stem ascending; leaves lanceolate, rather obtuse, attenuate at the base, entire or obscurely denticulate, the radical ones obovate-spatulate; flowers (small) in a rather crowded spike; tube of the calyx as long as the ovary, and longer than the segments; petals broadly obovate, emarginate, longer than the stamens; capsules nearly smooth, clavate-oblong, distinctly pedicelled, the alternate angles very narrowly winged.—*Michx. fl.* 1. *p.* 225; *Pursh, fl.* 1. *p.* 263; *Ell. sk.* 1. *p.* 444; *Torr. & Gr. fl.N. Am.* 1. *p.* 498.

Biennial? Stem a foot high, purplish, smooth above. Leaves 1 – 1½ inch long and 3 – 5 lines wide, narrowed below into a short slender petiole. Flowers smaller than in *Œ. fruticosa*, bright orange-yellow. Capsules somewhat pyriform, tapering into a slender stipulate base; the wings narrow, not decurrent on the pedicel: intermediate ribs very prominent.

Near Oswego (*Dr. Knieskern*); Niagara Falls (*Mr. J. Carey*). June – July. I fear not sufficiently distinct from the following.

5. ŒNOTHERA PUMILA, *Linn.* *Dwarf Evening Primrose.*

Minutely pubescent; stem ascending; leaves lanceolate, mostly obtuse, entire, acute or attenuate at the base, the radical ones obovate-spatulate; flowers (small) in a loose elongated leafy spike, the apex nodding before expansion; tube of the calyx shorter than the ovary, and about the length of the segments; petals obcordate, scarcely longer than the calyx-segments and stamens; capsules oblong-clavate, almost sessile, the alternate angles narrowly winged. — *Linn. sp.* (ed. 2.) 1. *p.* 493; *Bot. mag. t.* 335; *Pursh, fl.* 1. *p.* 262; *Torr. fl.* 1. *p.* 390; *DC. prodr.* 3. *p.* 51; *Hook. fl. Bor.-Am.* 1. *p.* 212; *H. H. Eaton in Transylv. journ. med.* 1832; *Beck, bot. p.* 119; *Torr. & Gr. fl. N. Am.* 1. *p.* 498. Œ. pusilla, *Michx. fl.* 1. *p.* 225.

Biennial. Stem 6 – 12 inches high, simple or sometimes sparingly branched, somewhat canescent with very short crisped hairs. Leaves 1 – 1½ inch long and 3 – 4 lines wide, strigosely pubescent. Flowers, when fully expanded, scarcely half an inch in diameter. Sepals lanceolate, with a very short abrupt acumination. Petals pale yellow. Stamens somewhat declined. Raceme elongated in fruit. Capsules nearly smooth when mature; the lower ones often with a short pedicel.

Dry fields; not uncommon, particularly in the northern and western part of the State. On Long Island (*Dr. Knieskern.*) June – July.

3. GAURA. *Linn.; Endl. gen.* 6131. *GAURA.*

[So named from its showy flowers; *gauros*, in Greek, signifying superb.]

Tube of the calyx much prolonged above the ovary, deciduous: segments 4 (rarely 3), reflexed. Petals 4 (rarely 3), clawed, somewhat unequal or one-sided. Stamens mostly 8. Ovary usually 4-celled, with 1 – 2 suspended ovules in each cell: stigma 4-lobed. Fruit 4-angled, by abortion mostly 1-celled, dry and indehiscent, 1 – 4-seeded. Seeds naked.— Herbaceous or suffruticose plants, with mostly sessile, alternate leaves. Flowers in terminal spikes or racemes. Petals white or rose-color.

1. GAURA BIENNIS, *Linn.* *Biennial Gaura.*

Stem herbaceous, hairy; leaves lanceolate, acute, repandly denticulate or toothed; segments

of the calyx about the length of the tube, rather longer than the spatulate-elliptical petals; fruit sessile, oval-oblong, somewhat acuminate, tapering at the base, with 4 prominent rounded angles and 4 slight intermediate ribs.—*Linn. sp.* 1. *p.* 347; *Michx. fl.* 1. *p.* 286; *Pursh, fl.* 1. *p.* 260; *Bot. mag. t.* 389; *Ell. sk.* 1. *p.* 346; *Torr. fl.* 1. *p.* 391; *DC. prodr.* 3. *p.* 44; *Beck, bot. p.* 117; *Darlingt. fl. Cest. p.* 598; *Torr. & Gr. fl. N. Am.* 1. *p.* 517.

Root biennial. Stem 3 – 8 feet high, much branched, firm and somewhat ligneous but not suffrutescent, almost villous with whitish hairs. Lower leaves 3 – 6 inches long and three-fourths of an inch wide, often strongly toothed, nearly smooth above; those of the branches much smaller. Flowers at first crowded in a corymbose manner (the long calyx-tubes of the lower ones resembling pedicels) at the summit of the stem and branches, at length spiked. Bracts small, caducous. Sepals linear-lanceolate, rather obtuse. Petals at first very pale or nearly white, finally deep rose-color, inclining towards the upper side of the flower. Stamens about the length of the petals: anthers fixed by the middle, linear-oblong. Style much longer than the stamens: stigma 4 oblong spreading lobes. Fruit somewhat woody; the dissepiments often remaining till near maturity. Seeds mostly abortive, seldom more than 2 or 3 of them ripening.

Dry soil, banks of the Mohawk, Chemung, Hudson, &c.; rather rare. Not found below the Highlands. August – September.

4. LUDWIGIA. *Linn.; Torr. & Gr. fl. N. Am.* 1. *p.* 523. *FALSE LOOSESTRIFE.*

[Named in honor of C. G. LUDWIG, professor of botany at Leipsic, in the last century.]

LUDWIGIA and ISNARDIA, *Linn. and most other authors.*

Calyx-tube 4-angled or nearly cylindrical, mostly short, not prolonged above the ovary; the lobes 4, usually persistent. Petals 4, often minute or wanting. Stamens 4, opposite the lobes of the calyx. Summit of the ovary truncate, or crowned with the dilated base of the style (stylopodium): style short: stigma capitate. Capsule short (or rarely elongated), 4-celled, many-seeded, finally opening by 4 valves.—Perennial, or sometimes annual herbs, growing in wet places. Leaves alternate or opposite, entire. Flowers axillary, or sometimes in terminal spikes or heads.

§ 1. EULUDWIGIA, Torr. & Gr. *Leaves alternate, sessile.*

1. LUDWIGIA ALTERNIFOLIA, *Linn.* *Seed-box.*

Stem erect, slightly angled by the decurrent petioles, smoothish; leaves lanceolate, rather acute, narrowed at the base; flowers axillary, pedicelled, the pedicels with two bracteoles; petals scarcely the length of the large ovate, acuminate lobes of the calyx; capsules with winged angles —*Linn. sp.* 1. *p.* 118; *Lam. ill. t.* 77; *Ell. sk.* 1. *p.* 217; *Bigel. fl. Bost. p.* 60; *Torr. & Gr. fl. N. Am.* 1. *p.* 522. L. ramosissima, *Walt. fl. Car. p.* 89. L. macrocarpa,

Michx. fl. 1. *p.* 89; *Pursh, fl.* 1. *p.* 110; *Torr. fl.* 1. *p.* 180; *Bart. fl. N. Am.* 1. *t.* 14. Isnardia alternifolia, *DC. prodr.* 3. *p.* 122; *Beck, bot. p.* 119; *Darlingt. fl. Cest. p.* 109.

Perennial. Stem 2 – 3 feet high, slightly pubescent or almost smooth, purplish, much branched, marked with elevated lines descending from the bases of the petioles. Leaves 2 – 4 inches long, the lateral veins uniting so as to form a continuous line within the margin. Pedicels 2 – 4 lines long. Bracteoles lanceolate, acute, situated close to the flower. Calyx-segments longer than the ovary, becoming purple on the inside. Petals yellow, roundish-obovate, caducous. Stamens much shorter than the petals: anthers large, oblong. Style thick: stigma obscurely 4-lobed. Capsule globose-cubical, crowned with the large dilated base of the style, opening at first by a small hole left by the separation of the deciduous style; afterward, the summit (stylopodium) of the capsule falls off. Seeds very numerous, attached to a large central placenta.

In swamps; common. July – August.

2. LUDWIGIA SPHÆROCARPA, *Ell.* (Plate XXIX.) *Round-fruited Ludwigia.*

Whole plant nearly smooth; stem erect, much branched; leaves narrowly lanceolate, mostly acute, attenuate at the base; flowers solitary, axillary, or clustered towards the summit of the branches, and appearing as if in leafy interrupted spikes, apetalous; bracteoles minute or wanting; lobes of the calyx as long as the capsule, triangular-ovate; capsules turbinate-globose, obscurely 4-sided, canescent, crowned with the deeply 4-lobed stylopodium. — *Ell. sk.* 1. *p.* 211; *Torr. & Gr. fl. N. Am.* 1. *p.* 524. Isnardia sphærocarpa, *DC. prodr.* 3. *p.* 61.

Perennial. Stem about 2 feet high, slightly pubescent above, smooth below, of a reddish tinge. Leaves of the stem 3 – 5 inches long, of the branches about 2 inches, remotely and obscurely repand-denticulate with a long tapering base, nearly smooth; the veins confluent near the margin. Flowers in somewhat compound leafy spikes. Calyx pubescent; the segments a little spreading. Petals none. Stamens scarcely half the length of the sepals: anthers broader than long; the lobes rather remote. Stigma oval, not lobed. Capsule about 2 lines long, crowned with the reddish depressed stylopodium, which is deeply divided into 4 obtuse lobes. Seeds oval.

In water near Peekskill (*Mr. R. I. Brownne*). July – August.

§ 2. ISNARDIA, Linn. *Leaves opposite, mostly petioled: flowers sessile: petals very small or none: capsules short, truncate at the apex.*

3. LUDWIGIA PALUSTRIS, *Ell.* *Water Purselane.*

Plant smooth and slightly succulent; stems procumbent, rooting or floating at the base; leaves ovate-spatulate, shining, tapering into a slender petiole; flowers axillary, apetalous, or with small purplish petals; lobes of the calyx very short; capsules oblong, 4-sided, not attenuate at the base.— *Ell. sk.* 1. *p.* 214; *Torr. & Gr. fl. N. Am.* 1. *p.* 525. L. apetala, *Walt. fl. Car. p.* 89. L. nitida, *Michx. fl.* 1. *p.* 87; *Pursh, fl.* 1. *p.* 111. Isnardia palustris,

Linn.; Torr. fl. 1. *p.* 182; *Bigel. fl. Bost. p.* 61; *Hook. in Engl. bot. suppl. t.* 2593, *and fl. Bor.-Am.* 1. *p.* 215; *Beck, bot. p.* 120; *Darlingt. fl. Cest. p.* 109. I. palustris, β. Americana, *DC. prodr.* 3. *p.* 61. I. ascendens, *Hall in Eat. man. ed.* 8. *p.* 285.

Root annual. Stem 6 – 12 inches long when growing in mud or wet ground, sometimes assurgent, but commonly prostrate, rooting at the joints. Leaves about an inch long, narrowed abruptly at the base into a petiole. Flowers very small. Segments of the calyx ovate, acute. Petals commonly absent, but occasionally found in an almost rudimentary state. Stamens much shorter than the calyx: anthers roundish. Style almost none. Capsule obtusely 4-angled. Seeds oblong, yellowish.

Ditches and slowly flowing water; common. July – October. A native also of Europe. The rudimentary petals occur most frequently when the plant grows in rather dry exposed situations.

TRIBE II. *CIRCÆEÆ. DC.*

Calyx scarcely produced above the ovary. Lobes of the calyx, petals and stamens 2. *Fruit indehiscent,* 2*-celled, with a single erect seed in each cell.—Leaves opposite, petioled.*

5. CIRCÆA. *Tourn.; Endl. gen.* 6130. *ENCHANTER'S NIGHTSHADE.*

["Poetically named after the enchantress *Circe*: the genus growing in damp shady places, where plants used for incantations are found." LOUDON.]

Tube of the calyx contracted above the ovary; the limb 2-parted. Petals 2, obcordate, inserted into the cup-shaped disk at the summit of the ovary. Stamens alternate with the petals. Style filiform: stigma capitate, 2-lobed. Fruit obovate, hispid with hooked hairs. —Perennial herbs, with opposite petioled membranaceous leaves. Flowers small, white or pale rose-color, in terminal and lateral racemes: pedicels reflexed in fruit.

My friend, Prof. Bailey, of West-Point, has observed a very distinct circulation in the transparent hairs of the fruit in this genus.

1. CIRCÆA LUTETIANA, *Linn.* *Common Enchanter's Nightshade.*

Leaves ovate, somewhat cordate, acuminate, slightly repand-toothed, usually longer than the petiole; bracts none; disk projecting beyond the tube of the calyx. — *Linn. sp.* 1. *p.* 8 (*var.* Canadensis); *Michx. fl.* 1 *p.* 17; *Pursh, fl.* 1. *p.* 21; *Ell. sk.* 1. *p.* 7; *Torr. fl.* 1. *p.* 29; *Bigel. fl. Bost. p.* 11; *Beck, bot. p.* 120; *Darlingt. fl. Cest. p.* 7; *Torr. & Gr. fl. N. Am.* 1. *p.* 527. C. Canadensis, *Muhl. cat. p.* 2.

Stem about a foot and a half high, mostly quite smooth, but sometimes slightly pubescent, swollen at the nodes. Leaves mostly rounded, but sometimes cordate at the base; the lamina usually more than twice the length of the petiole. Flowers in slender racemes. Pedicels 2 – 3 lines long, spreading, and at length reflexed. Calyx contracted into a short neck above the ovary. Sepals ovate-oblong, rather obtuse. Petals mostly white, or very pale rose-color. Style slender: stigma with 2 small hemispherical lobes. Fruit covered with whitish hairs which are hooked at the extremity.

Moist shady woods; common. July – August.

2. CIRCÆA ALPINA, *Linn.* *Alpine Enchanter's Nightshade.*

Stem weak; leaves cordate, shining, rather coarsely toothed, the lower ones as long as the petioles; pedicels with a minute setaceous bract at the base; disk scarcely projecting beyond the tube of the calyx. — *Linn. sp.* 1. *p.* 8; *Engl. bot. t.* 1057; *Michx. fl.* 1. *p.* 17; *Pursh, fl.* 1. *p.* 21; *Torr. fl.* 1. *p.* 30; *Bigel. fl. Bost. p.* 11; *Hook. fl. Bor.-Am.* 1. *p.* 215; *Torr. & Gr. fl. N. Am.* 1. *p.* 527.

Stem 4 – 8 inches high, sometimes assurgent. Leaves very thin and somewhat translucent, broadly cordate, always either cordate or truncate at the base; the lower ones with elongated petioles. Flowers and fruit as in the preceding species, but considerably smaller; the hairs on the fruit also are weaker.

Dense woods, on prostrate trunks of trees, and about springs, particularly in mountainous districts; very common in the northern and western parts of the State; not found south of Catskill. July – August. The two species of *Circæa* are very nearly allied, but they can usually be distinguished by the characters here given. Some botanists consider them varieties of one species.

SUBORDER HALORAGEÆ. *R. Br.; DC.* (excl. CALLITRICHE).

Limb of the calyx 3 – 4-lobed or -toothed, sometimes nearly wanting. Petals 3 – 4, or wanting. Stamens double the number of the petals, or equal to them, or fewer, inserted with the petals into the throat of the calyx. Ovary cohering with the calyx, 1 – 4-celled: style none: stigmas equal in number to the cells, papillose or pencil-formed. Fruit 1 – 4-celled, membranaceous or bony, indehiscent, with a solitary pendulous seed in each cell. Embryo straight, in the centre of thin fleshy albumen: radicle long and slender: cotyledons small. —Herbaceous or somewhat shrubby plants, growing in wet places or in water. Leaves alternate, opposite or verticillate. Flowers very small, axillary, sessile, or in spikes, sometimes monœcious or diœcious.

6. PROSERPINACA. *Linn.; Juss. in ann. mus.* 3. *p.* 320. *t.* 30. *f.* 1; *Endl. gen.* 6137.
MERMAID-WEED.

[From the Latin, *proserpo*, to creep; the stems creeping and rooting at the base.]

Tube of the calyx 3-sided; the limb 3-parted. Petals none. Stamens 3. Stigma oblong, papillose. Fruit bony, triangular, 3-celled. — Perennial aquatic herbs; the stems creeping at the base. Leaves serrate or pectinately cut. Flowers axillary, perfect, solitary or several together.

1. PROSERPINACA PALUSTRIS, *Linn.* *Common Mermaid-weed.*

Leaves lanceolate or almost linear, upper (emersed) ones sharply serrate, lowermost (submersed) pectinately incised or pinnatifid; fruit acutely 3-cornered, the sides broadly cordate and concave. — *Linn. act. Upsal.* 1741, *p.* 81; *Michx. fl.* 1. *p.* 76; *Pursh, fl.* 1. *p.* 92; *Ell. sk.* 1. *p.* 181; *Torr. fl.* 1. *p.* 161; *Bigel. fl. Bost. p.* 48; *DC. prodr.* 3. *p.* 67; *Torr. & Gr. fl. N. Am.* 1. *p.* 528.

Stem a foot and a half or more in length, the lower part usually submerged, mostly simple. Leaves 2 inches long; the upper ones finely serrated; the lower ones gradually more and more cut, till they are pectinate, with long and very narrow divisions. Flowers mostly solitary, sometimes 2 – 4 together, scarcely 2 lines long. Calyx-segments broadly lanceolate. Stamens exserted: anthers roundish, large. Stigmas obtuse, purplish. Sides of the fruit broader than long, often a little rugose when mature.

Shallow ponds, ditches and swamps. June – August.

2. PROSERPINACA PECTINACEA, *Lam.* *Cut-leaved Mermaid-weed.*

Leaves all pectinately cut into narrow linear segments; angles of the fruit rather obtuse, the sides ovate and slightly convex. — *Lam. ill. t.* 50. *f.* 1; *Pursh, fl.* 1. *p.* 92; *Ell. sk.* 1. *p.* 192; *Torr. fl.* 1. *p.* 162; *DC. prodr.* 3. *p.* 67; *Torr. & Gr. fl. N. Am.* 1. *p.* 528. P. palustris, *β.*, *Michx. fl.* 1. *p.* 76.

Stem seldom more than a foot long, slender. Leaves scarcely an inch long; the segments rather distant. Flowers resembling those of the preceding species, but the ovary longer in proportion to the breadth. Stigmas attenuate upward. Capsule a little rugous on the sides when mature.

Beaver meadow near Vernon (*Dr. Douglas*). I have not seen the specimens collected by Dr. Douglas; and were he not so good a botanist, I should doubt whether this species grew in the western part of the State. It will very probably yet be found on Long Island.

7. MYRIOPHYLLUM. *Vaill.; Linn.; Endl. gen.* 6135. *WATER MILFOIL.*

[From the Greek, *myrios*, a myriad, and *phyllon*, a leaf; the leaves being cut into innumerable fine segments.]

Flowers either monœcious or perfect. Calyx 4-parted in the staminate, 4-toothed in the pistillate and perfect flowers. Petals 4, often rudimentary or wanting. Stamens 4 or 8. Ovary 4-celled: stigmas oblong or linear, pencil-form or papillose along the inner surface. Fruit of 4 nut-like carpels cohering by their inner angles, and enclosed in the adherent tube of the calyx. — Aquatic and usually submersed perennial plants, the upper part emersed while flowering. Leaves verticillate, sometimes opposite or alternate; those under water

pinnately cut into numerous fine segments. Flowers sessile in the axils of the upper leaves; sometimes in terminal spikes, from the leaves being reduced to bracts; the uppermost commonly staminate (with abortive pistils), the lowest fertile (with abortive stamens), and the intermediate ones perfect.

§ 1. *Flowers octandrous: carpels not ridged on the back: leaves verticillate.*

1. MYRIOPHYLLUM SPICATUM, *Linn.* *Spiked Water Milfoil.*

Leaves all pinnately cut into capillary segments; bracts shorter than the flowers, ovate, entire, the lowermost larger and serrate; petals broadly ovate; carpels smooth and even.— *Linn. sp.* 2. *p.* 992; *Michx. fl.* 1. *p.* 190; *Engl. bot. t.* 83; *Pursh, fl.* 1. *p.* 274; *Ell. sk.* 2. *p.* 588; *Torr. comp. p.* 354; *Bigel. fl. Bost. p.* 345; *DC. prodr.* 3. *p.* 68; *Hook. fl. Bor.-Am.* 1. *p.* 216; *Torr. & Gr. fl. N. Am.* 1. *p.* 529.

Stem varying in length with the depth of the water, sometimes 10 – 15 feet long, slender. Leaves 3 – 5 in a whorl, all very finely cut. Flowers in an interrupted leafless spike, which rises above the water; the upper bracts or floral leaves entire, very small, but increasing in length towards the lower part of the spike, where they are sharply serrate.

Deep ponds and slowly flowing waters; not common. July – August.

2. MYRIOPHYLLUM VERTICILLATUM, *Linn.* *Whorled Water Milfoil.*

Lower leaves cut into capillary segments; floral ones, or bracts, pectinately pinnatifid, commonly much longer than the flowers; petals oblong-obovate; carpels smooth and even.— *Linn. sp.* 2. *p.* 992; *Michx. fl.* 2. *p.* 190; *Engl. bot. t.* 218; *Pursh, fl.* 1. *p.* 274; *Ell. sk.* 2. *p.* 588; *Torr. compend. p.* 355; *DC. prodr.* 3. *p.* 68; *Torr. & Gr. fl. N. Am.* 1. *p.* 529.

Stem very long, stouter than in the preceding species. Submerged leaves all finely divided; those belonging to the emersed part of the stem, much smaller and pectinate. Flowers in a leafy spike. Segments of the calyx much smaller than the petals, acute. Anthers oblong. Stigmas large and thick; the surface covered with purplish woolly hairs.

Ponds and small streams; rather common. July – September.

§ 2. *Flowers tetrandrous: carpels with one or two ridges on the back: leaves verticillate.*

3. MYRIOPHYLLUM HETEROPHYLLUM, *Michx.* *Various-leaved Water Milfoil.*

Stem thick; lower leaves cut into capillary segments; floral ones ovate or lanceolate, thick, sharply serrate, crowded, usually 5 in a whorl; petals oblong; carpels minutely roughened, slightly 2-ridged and tuberculate on the back.— *Michx. fl.* 2. *p.* 191; *Pursh, fl.* 1. *p.* 274; *Ell. sk.* 2. *p.* 588; *Torr. comp. p.* 355; *DC. prodr.* 3. *p.* 69; *Torr. & Gr. fl. N. Am.* 1. *p.* 529.

Stem very long; much stouter, and the submerged leaves smaller, than in the preceding

species. Floral leaves about half an inch long, of a firm texture; upper ones serrate, lowest ones pectinately toothed. Flowers whorled, in the axils of the upper leaves. Anthers linear-oblong. Stigmas woolly, purple.

Ponds and slowly flowing streams; common in the western part of the State. July – September.

§ 3. *Flowers tetrandrous: carpels not ridged on the back: leaves alternate, or almost wanting.*

4. MYRIOPHYLLUM AMBIGUUM, *Nutt.* *Polymorphous Water Milfoil.*

Submersed leaves cut into capillary segments; the emersed ones pectinate; upper floral ones linear, tapering into a short petiole, sparingly incised or toothed, sometimes entire; flowers mostly perfect; petals oblong; carpels smooth and even. — *DC. prodr.* 3. *p.* 70; *Torr. & Gr. fl. N. Am.* 1. *p* 530.

var. 1. *natans:* stem floating; emersed leaves narrow, rigid, serrate or pectinate, the floating ones capillary. *DC. l. c.; Torr. & Gr. l. c.* M. ambiguum, *Nutt. gen.* 2. *p.* 212; *Torr. comp. p.* 355.

var. 2. *capillaceum:* leaves all immersed and capillary. *Torr. & Gr. l. c.* M. capillaceum, *Torr. comp. l. c.*

var. 3. *limosum:* small; stem procumbent and rooting; leaves all narrow, rigid, sparingly toothed or pinnately cut into several narrow lobes, sometimes nearly entire. *Nutt. l. c.; Torr. comp. l. c.; DC. l. c.; Torr. & Gr. l. c.* M. procumbens, *Bigel. fl. Bost. p.* 346. Purshia humilis, *Raf. in New-York med. rep.* 2. *p.* 361.

A very variable plant. The floating forms have long slender stems, and the leaves are cut into very narrow attenuated segments. In var. 3. the stems creep in the mud, and are only from 2 to 6 inches long, forming large green patches on the margins of ponds. Flowers very small, reddish. Anthers oblong. Stigmas pencillate.

Ponds and miry places on Long Island. July – August.

5. MYRIOPHYLLUM TENELLUM, *Bigel.* *Leafless Water Milfoil.*

Stems (scapes) almost leafless, arising from a prostrate rhizoma; bracts minute, entire; flowers alternate; petals linear-oblong; carpels smooth and even. — *Bigel. fl. Bost. p.* 346; *Torr. comp. p.* 355; *DC. prodr.* 3. *p.* 69; *Hook. fl. Bor.-Am.* 1. *p.* 216; *Torr. & Gr. fl. N. Am.* 1. *p.* 530.

Rhizoma slender, rooting in the mud, and throwing up several scapes or flowering branches 4 – 10 inches high, the lower part submerged. Leaves reduced to mere little alternate scales. Flowers monœcious, very small. Bracts oblong, obtuse, mostly rather longer than the flower. Calyx-segments very short, acute. Petals purplish. Anthers oblong. Stigmas at length feathery.

Borders of ponds and small streams of water. Northern part of the State. Peach Pond, Westchester county (*Dr. Mead*). July – August.

8. HIPPURIS. *Linn.; Endl. gen.* 6134. *MARESTAIL.*

[From the Greek, *hippos*, a horse, and *oura*, a tail.]

Border of the calyx very narrow and entire. Petals none. Stamen solitary, inserted on the margin of the calyx. Style filiform, stigmatose on one side, at first placed between the two lobes of the anther. Fruit one-celled, one-seeded.— Aquatic perennial herbs, with simple stems, verticillate entire leaves, and axillary minute flowers which are often polygamous.

1. HIPPURIS VULGARIS, *Linn.* *Common Marestail.*

Leaves in whorls of 8 – 12, linear, callous at the tip (*Hook.*).— *Linn. sp.* 1. *p.* 4; *Engl. bot. t.* 763; *Michx. fl.* 1. *p.* 1; *Pursh, fl.* 1. *p.* 3; *Torr. fl.* 1. *p.* 2; *DC. prodr.* 3. *p.* 71; *Hook. fl. Bor.-Am.* 1. *p.* 217; *Torr. & Gr. fl. N. Am.* 1. *p.* 531.

Stem usually a foot or eighteen inches high, jointed. Leaves about a line wide; those on the emersed part of the stem scarcely an inch in length; the submersed ones much longer, and crowded. Flowers inconspicuous; the free portion of the calyx forming a very narrow border at the summit of the ovary. Filament short and flat: anther large, red; the two lobes, when young, folded around the style which passes between them. Fruit small, somewhat drupaceous; the endocarp cartilaginous.

Ponds and lakes. Cayuga lake (*Dr. Jed. Smith*); near Schenectady (*Dr. Beck*); ditches near Coldspring, Putnam county (*Prof. Bailey*). It appears to be identical with the European plant.

GROUP 14. *Ovary compound, one-celled, with parietal placentæ. Petals and stamens inserted in the throat of the calyx. Flowers perfect. Calyx adherent to the ovary.*

ORDER XLII. CACTACEÆ. *Juss.* THE CACTUS TRIBE.

Calyx consisting of numerous imbricated sepals, which cohere with and crown the ovary, or cover its whole surface; the inner ones confounded with the numerous petals. Stamens numerous, cohering with the base of the petals, and inserted with them into the throat of the calyx. Ovary fleshy, one-celled, with numerous parietal placentæ: ovules numerous: styles united: stigmas as many as the placentæ. Fruit a berry, 1-celled, many-seeded; the seeds

finally losing their connection with the placentæ, and immersed in the pulp. Albumen none. Embryo with a thick obtuse radicle: cotyledons often united or nearly wanting. — Succulent shrubby plants of singular habit; the stems usually somewhat globose, angular, 2-edged, or foliaceous and jointed, mostly destitute of true leaves. Buds spiny. Flowers mostly large and showy, solitary, sessile.

1. OPUNTIA. *Tourn. inst. t.* 122; *Endl. gen.* 5161. *INDIAN FIG.*

[A name of Theophrastus, applied to this genus.]

Sepals and petals not produced into a tube, spreading. Stamens shorter than the petals. Style cylindrical, constricted at the base: stigmas 3 – 8, thick, erect. Berry ovoid, umbilicate at the summit, tuberculate, often prickly. Embryo somewhat spiral, nearly terete.— Shrubby plants with jointed branches; the joints mostly compressed and dilated, bearing tufts of bristles or prickles. Flowers yellow or red, arising from the clusters of prickles, or along the margin of the joints. *DC.*

1. OPUNTIA VULGARIS, *Mill.* *Common Indian Fig*, or *Prickly Pear.*

Prostrate or somewhat assurgent, diffuse and creeping; joints ovate; prickles short and very numerous, often with several strong subulate spines; fruit crimson.— *Mill. dict. t.* 191; *DC. prodr.* 3. *p.* 474; *Hook. bot. mag. t.* 2393; *Torr. & Gr. fl. N. Am.* 1. *p.* 555. Cactus Opuntia, *Linn.; Michx. fl.* 1. *p.* 282; *Pursh, fl.* 1. *p.* 327; *Nutt. gen.* 1. *p.* 296; *Ell. sk.* 1. *p.* 537; *Torr. fl.* 1. *p.* 466.

Plant usually growing in tufts; the branches often more or less assurgent: joints very fleshy, 3 – 6 inches long: tufts of bristles arranged (as in all the genus) in a quincuncial or spiral order; the bristles very slender, rigid and acute, barbed. Spines, when present, about three-fourths of an inch long, and of a yellowish color. Flowers more than two inches in diameter, usually several on the margin of the upper joints. Sepals ovate-lanceolate, acuminate. Petals bright yellow, mucronate. Stamens very numerous: filaments smooth: anthers linear. Style longer than the stamens. Fruit nearly two inches long, obovate, nearly smooth, pulpy and eatable.

On rocks and in sandy fields; common around New-York and on Long Island; rare on the Hudson above West-Point. The most northern locality in the State is Fairfield, where it was found by *Prof. Hadley*. At Manhattanville, on the Island of New-York, I have found it with the strong yellow spines which it so commonly bears in the Southern States. *Fl.* June – July. *Fr.* August.

ORDER XLIII. GROSSULACEÆ. *DC.* THE CURRANT TRIBE.

Calyx campanulate or tubular, often colored, withering, 5- (rarely 4-) cleft; segments at length spreading or reflexed. Petals small, as many as the segments of the calyx and alternate with them, inserted into the throat of the calyx. Stamens as many as the petals, and inserted alternately with them. Ovary coherent with the calyx-tube, 1-celled with 2-parietal placentæ: ovules mostly numerous: styles 2 (very rarely 3 or 4), united or distinct. Fruit a berry, crowned with the withered flower. Seeds anatropous; the raphe at length distinct from the gelatinous testa: the tegmen crustaceous, strongly adhering to the dense almost horny albumen. Embryo minute. — Shrubs, mostly spiny or prickly, with alternate (often fascicled) palmately veined and lobed leaves. Flowers racemose, sometimes solitary.

1. RIBES. *Linn.; DC. prodr.* 3. *p.* 477. CURRANT and GOOSEBERRY.

[An ancient Arabic name for a plant, supposed by the older botanists to be the Gooseberry.]

Character same as that of the order.

§ 1. GROSSULARIA, A. Rich. *Stems usually armed with subaxillary spines, and often prickly: peduncles mostly* 1 – 3*-flowered: calyx more or less campanulate: berries often prickly.* (Gooseberry.)

1. RIBES CYNOSBATI, *Linn.* *Prickly Gooseberry.*

Stem either unarmed or prickly; subaxillary spines 1 – 3; leaves cordate, roundish, 3 – 5-lobed, more or less pubescent, the lobes incisely serrate; peduncles 2 – 3-flowered; tube of the calyx broadly campanulate, slightly contracted at the mouth; the segments at length reflexed, shorter than the tube, and longer than the obovate petals; stamens and styles slightly included; style undivided, hairy at the base; fruit prickly, or rarely smooth.—*Linn. sp.* 1. *p.* 202; *Michx. fl.* 1. *p.* 111; *Jacq. hort. Vindob.* 2. *t.* 123; *Pursh, fl.* 1. *p.* 166; *Bigel. fl. Bost. p.* 91; *DC. prodr.* 3. *p.* 479; *Hook. fl. Bor.-Am.* 1. *p.* 230 (excl. γ.); "*Guimp. Otto & Hayne, holz. t.* 135." R. gracile, *Torr. fl.* 1. *p.* 269, not of *Michx.*

A bush 2 – 4 feet high, erect, the lower part often prickly. Subaxillary spines mostly 2, sometimes wanting. Leaves clothed with a soft pubescence, particularly underneath; petioles downy. Raceme nodding; the pedicels long and slender, divaricate. Calyx greenish-white; the segments lanceolate, rather acute, ciliate, at first erect, but at length reflexed. Fruit brownish when ripe, usually armed with strong prickles so as to resemble a burr, but occasionally smooth.

Woods, particularly on mountain sides. Fishkill and Catskill mountains; also in the northern and western part of the State. May – June.

2. RIBES ROTUNDIFOLIUM, *Michx.* *Round-leaved Gooseberry.*

Stems not prickly; subaxillary spines short, usually solitary (sometimes absent); leaves roundish, 5-lobed, nearly smooth, a little shining above; the lobes short and obtuse, incisely toothed; peduncles slender, 1 – 2-flowered, smooth; calyx cylindrical, narrow, smooth as well as the ovary; the segments linear-oblong, twice the length of the tube; filaments exserted, smooth, twice or thrice the length of the broadly-spatulate unguiculate petals; style deeply 2-parted, hairy below; fruit smooth. — *Michx. fl.* 1. *p.* 110; *Torr. & Gr. fl. N. Am.* 1. *p.* 547. R. triflorum, *Willd. hort. Berol. t.* 61, *and enum.* 1. *p.* 51; *Pursh, fl.* 1. *p.* 165; *Torr. fl.* 1. *p.* 269; *DC. prodr.* 3. *p.* 479; *Hook. fl. Bor.-Am.* 1. *p.* 230; "*Guimp. Otto & Hayne, holz. t.* 3." R. gracile, *Pursh, fl.* 1. *p.* 165, not of *Michx.*

A shrub 3 – 4 feet high, with spreading recurved branches, often destitute of spines. Leaves 1 – 2 inches in diameter (at the time of flowering often only about half an inch), cordate or obtusely cuneate at the base, smooth or a little pubescent underneath; the lobes obtuse. Flowers greenish with a tinge of purple. Fruit about the size of a large black currant, purplish when ripe, pleasantly flavored.

Mountain woods; common in the Highlands. *Fl.* May – June. *Fr.* July.

3. RIBES LACUSTRE, *Poir.* *Swamp Gooseberry.*

Young stems very hispid-prickly; subaxillary spines few, weak; leaves cordate, 3 – 5-parted, the lobes deeply incised; racemes 5 – 9-flowered, loose; calyx broad and flattish; stamens as long as the petals; style short, smooth, 2-cleft; fruit hispid. — *Poir. suppl.* 2. *p.* 856; *Pursh, fl.* 1. *p.* 165; *Nutt. gen.* 1. *p.* 140; *Torr. fl.* 1. *p.* 270; *Bigel. fl. Bost. p.* 91; *DC. prodr.* 3. *p.* 478; *Hook. fl. Bor.-Am.* 1. *p.* 230; "*Guimp. Otto & Hayne, holz. t.* 136;" *Torr. & Gr. fl. N. Am.* 1. *p.* 548. R. oxycanthioides, *Michx. fl.* 1. *p.* 111 (not of *Linn.*). R. oxycanthoides, *β.* lacustris, *Pers. syn.* 1. *p.* 252.

Stem 3 – 4 feet high; the branches of a reddish color, thickly covered with slender rather soft prickles, which are spreading or a little reflexed. Subaxillary spines 2 – 5, united at the base. Leaves lobed nearly to the middle, slightly pubescent on both sides; petioles villous. Peduncles slender, pendulous, mostly 5 – 6-flowered, pubescent. Calyx greenish-yellow. Petals minute. Fruit dark purple, and ill-flavored.

Mountain swamps. Catskill. I have also seen specimens which I believe were collected in the northern part of the State. May – June.

§ 2. RIBESIA, Berland. *Stems neither prickly nor spiny: racemes several-flowered: calyx campanulate or cylindrical: berries not prickly.* (Currant.)

4. RIBES FLORIDUM, *l'Herit.* *Wild Black Currant.*

Leaves sprinkled on both sides with resinous dots, acutely 3 – 5-lobed, pubescent; racemes pendulous, villous; bracts longer than the pedicels; calyx tubular-campanulate, smooth, the segments about as long as the tube; style undivided; fruit smooth.—*L'Herit. stirp.* 1. *p.* 4; *Torr. fl.* 1. *p.* 267; *Bigel. fl. Bost. p.* 90; *DC. prodr.* 3. *p.* 482; *Guimp. Otto & Hayne, holz. t.* 1; *Hook. fl. Bor.-Am.* 1. *p.* 233; *Darlingt. fl. Cest. p.* 160; *Torr. & Gr. fl. N. Am.* 1. *p.* 549. R. nigrum, β., *Linn.* R. recurvatum, *Michx. fl.* 1. *p.* 110. R. Pennsylvanicum, *Lam. dict.* 3. *p.* 49.

Stem 3 – 4 feet high: branches somewhat recurved, covered with a grayish bark. Leaves 2 – 3 inches in diameter, with spreading acutely toothed lobes, slightly sprinkled with minute yellowish dots: petioles as long as the lamina, pubescent, and fringed towards the base with long compound hairs. Racemes about 3 inches long, many-flowered, retrorsely pubescent. Calyx yellowish green. Petals greenish-yellow, oblong. Stamens included. Style scarcely exserted, sulcate: stigma slightly 2-cleft. Berries roundish-ovoid, a little smaller than the cultivated *Black Currant*, which it resembles in taste and odor; nearly black when mature.

Borders of woods, fences, etc., sometimes in low grounds; common. *Fl.* May. *Fr.* July – August. Flowers larger than in any of the preceding species.

5. RIBES PROSTRATUM, *l'Herit.* *Fetid Currant.*

Stems reclining or prostrate; leaves deeply cordate, 5 – 7-lobed; the lobes somewhat ovate, acute, spreading, incisely and doubly serrate; racemes erect, slender; bracts much shorter than the bristly-glandular pedicels; calyx hemispherical, the segments obovate; petals spatulate, very small; style deeply 2-parted; fruit glandular-hispid.—*L'Herit. stirp.* 1. *p.* 3. *t.* 2; *Pursh, fl.* 1. *p.* 163; *Torr. fl.* 1. *p.* 268; *DC. prodr.* 3. *p.* 482; *Hook. fl. Bor.-Am.* 1. *p.* 232; *Torr. & Gr. fl. N. Am.* 1. *p.* 550. R. glandulosum, *Ait. Kew.* (ed. 1.) 1. *p.* 279. R. rigens, *Michx. fl.* 1. *p.* 110; *Bigel. fl. Bost. p.* 90.

Stems 1 – 3 feet long, prostrate and rooting, with somewhat erect branches. Leaves 2 – 3 inches in diameter, lobed nearly to the middle, smooth above, strigosely pubescent underneath. Racemes 8 – 13-flowered, at first erect, in fruit somewhat pendulous. Calyx greenish, with purple veins: segments broad and spreading. Petals and anthers purplish. Fruit red, the size of a large currant, hispid with glandular hairs, of a rank odor when bruised.

Rocky places in the northern and western part of the State. *Fl.* May. *Fr.* July.

Group 15. *Character the same as of the following order.*

Order XLIV. CUCURBITACEÆ. *Juss.* The Gourd Tribe.

Flowers monœcious or diœcious. Calyx of 5 (rarely 6) sepals united into a tube, which, in the fertile flowers, is adherent to the ovary. Petals as many as the sepals, commonly united with each other and with the calyx. Stamens 5 or rarely 3, united so as to appear 2 or 3 (one or two pairs and a separate one), variously united by their filaments and long sinuous or variously folded anthers. Ovary 2 – 5-celled (very rarely one-celled, with a solitary ovule); the thick and fleshy placentæ often filling the cells, or carried back so as to reach the margin; the dissepiments often at length obliterated. Fruit a pepo, usually fleshy, but sometimes membranous when mature. Seeds flat, often arillate, without albumen. Cotyledons foliaceous. — Juicy herbaceous plants, climbing by tendrils. Leaves alternate, palmately veined. Flowers axillary.

1. SICYOS. *Linn.; Endl. gen.* 5146. *SINGLE-SEEDED CUCUMBER.*

[*Sikyos* is an ancient Greek name for the Cucumber.]

Flowers monœcious. Sterile Fl. Calyx flattish: teeth subulate or minute. Petals 5, all cohering in a tube, at length separating into three parcels: anthers tortuous. Fertile Fl. Calyx constricted above the ovary, campanulate. Corolla campanulate. Ovary 1-celled, with a solitary suspended ovule. Style rather slender: stigmas 3, thick, obtuse, spreading. Fruit ovate, membranaceous, mostly spiny or hispid. Seed large, compressed, smooth; the testa almost crustaceous. — Annual plants. Sterile flowers in racemes; fertile ones in pedunculate capitate clusters; both usually from the same axils: corolla greenish-white.

1. Sicyos angulatus, *Linn.* *Common Single-seeded Cucumber.*

Stem, petioles and peduncles somewhat viscidly pubescent with long hairs; leaves roundish-cordate, angularly 5-lobed, with as many primary veins, the lobes denticulate and acuminate; sterile flowers in a corymbose crowded raceme, on a very long peduncle; fertile flowers on a much shorter peduncle; style slender; fruit viscidly pubescent, and covered with rough prickly bristles.—*Linn. sp.* 2. *p.* 1013; *Michx. fl.* 2. *p.* 217; *Pursh, fl.* 2. *p.* 44; *Ell. sk.* 2. *p.* 663; *Torr. compend. p.* 362; *DC. prodr.* 3. *p.* 309; *Beck, bot. p.* 178; *Darlingt. fl. Cest. p.* 554; *Torr. & Gr. fl. N. Am.* 1. *p.* 541. S. acutus, *Raf.*; *DC. l. c.* Bryonoides, &c. *Dill. Elth. t.* 51. *f.* 59.

A vine 10 – 15 feet long, climbing by 3 – 5-cleft tendrils. Leaves 4 – 6 inches in diameter, with a pentagonal outline, roughish pubescent. Peduncles of the staminate flowers 4 – 8 inches long; the raceme often somewhat compound, finally somewhat elongated. Fertile flowers not half the size of the staminate ones, sessile, on a peduncle which is 1 or 2 inches long. Fruit about half an inch long, compressed, acute, collected in a head at the summit of the peduncle; the prickles about one-third of an inch long.

Banks of rivers, cultivated grounds, and along fences; common. August – September. Often a troublesome weed in gardens.

2. ECHINOCYSTIS. *Torr. & Gr. fl. N. Am.* 1. *p.* 542; *Endl. gen. suppl.* 1. 5141, 1.

WILD BALSAM-APPLE.

[From the Greek, *echinos*, prickly, and *kystis*, a bladder; in allusion to the appearance of the fruit.]

Flowers monœcious. Calyx flattish, in the fertile flowers slightly contracted above the ovary; the segments 6, filiform-subulate, shorter than the corolla. Corolla 6-parted, rotate-campanulate. STERILE FL. Stamens 3, diadelphous, short: anthers flexuous, united. FERTILE FL. Abortive filaments 3, very small, distinct. Style very short: stigmas 2, large, broadly obcordate, connivent. Fruit globose-ovoid, bristly-echinate, at first watery and spongy, at length bursting elastically at the summit, and becoming fibrous, 2-celled, 4-seeded; the cells divided at the base by a transverse spurious dissepiment. Seed (large) not arillate, erect from the base of each spurious cell, obovate-oblong, flat, slightly 2-toothed at the base, the margins obtuse.—An annual climbing herb, with palmately 5-lobed leaves and 3-cleft tendrils. Flowers small, greenish-white; the sterile in long compound racemes; the fertile ones from the same axils, solitary or clustered on a short peduncle.

1. ECHINOCYSTIS LOBATA, *Torr. & Gr.* (Plate XXX.) *Wild Balsam-apple.*

Torr. & Gr. l. c. Sicyos lobata, *Michx. fl.* 2. *p.* 217. Momordica echinata, *Muhl. in Willd. sp.* 4. *p.* 605; *Pursh, fl.* 2. *p.* 444; *Torr. compend. p.* 362; *DC. prodr.* 3. *p.* 312; *H. H. Eaton in Transylv. journ. med.* 1832; *Hook. fl. Bor.-Am.* 1. *p.* 220. Hexameria echinata, *Torr. & Gr. in Torr. rep. pl. N. York, p.* 137.

Stem smooth, 10 – 15 feet long, climbing over shrubs, etc. Leaves nearly smooth, 3 – 5 inches in diameter, slightly scabrous, with 5 deep acuminate sharply denticulate lobes. Sterile racemes compound, erect, 5 – 7 inches long. Corolla nearly white, pubescent; the segments linear-lanceolate. Fertile flowers solitary, or 2 – 3 together. Fruit about the size of a pigeon's egg, covered with short soft bristly spines, green, bursting rather irregularly at the summit, the lacerated edges of the orifice becoming revolute. Seeds about three quarters of an inch long, obovate-oblong, nearly black.

Banks of the Hudson, and on the islands about Troy; also abundant on the banks of the

Mohawk. *Fl.* July – August. *Fr.* September. An ornamental plant when in full flower, being covered with numerous graceful racemes of whitish flowers. It is sometimes seen in gardens.

The name *Hexameria*, given to this genus in my Report of 1840, was changed, because it had been employed previously by Bennett in his *Plant. Jav. rariores.*

GROUP 16. *Ovaries 2 or more, many-ovuled, distinct or more or less united. Calyx free from the ovary, or the tube partly (rarely wholly) united to the ovary. Petals and stamens (mostly definite) inserted on the calyx. Seeds numerous, albuminous.*

ORDER XLV. CRASSULACEÆ. *Juss.* THE HOUSELEEK TRIBE.

Sepals 4 – 5 (in SEMPERVIVUM 6 – 20), free from the ovaries, persistent, more or less united at the base. Petals as many as the sepals, sometimes combined into a monopetalous corolla. Stamens as many or twice as many as the petals. Pistils always equal in number to the sepals, distinct or partly united. Carpels follicular, usually several-seeded. — Herbaceous or sometimes suffruticose plants, mostly fleshy or succulent, with simple leaves and the flowers commonly in cymes or racemes.

1. TILLÆA. *Mich. gen. t.* 20; *Endl. gen.* 4607. *TILLÆA.*

[In honor of MICH. AUG. TILLI, an Italian botanist who died in 1740.]

Sepals, petals and stamens 3 – 4. Carpels 3 – 4, distinct, opening by the inner suture, 2 – many-seeded. — Small, more or less aquatic plants, and small axillary flowers.

* BULLIARDA, *DC.* *Flowers tetramerous: petals oval or oblong: hypogynous scales linear: carpels 5 – 20-seeded.*

1. TILLÆA SIMPLEX, *Nutt.* *Pigmy-weed.*

Stem diffusely branching from the base, and rooting; the branches ascending; leaves linear-oblong, rather obtuse, connate at the base; flowers solitary, nearly sessile; petals nearly as long as the carpels, and twice as long as the sepals.— *Nutt. in jour. acad. Phil.* 1. *p.* 114, *and gen. appx.; DC. prodr.* 3. *p.* 381; *Torr. & Gr. fl. N. Am.* 1. *p.* 557. T. ascendens, *Eat. man. ed.* 8. *p.* 453.

Stems 1 – 2 inches long, branching towards the base, and rooting in the mud. Leaves 2 – 3 lines long, spreading and somewhat recurved, their bases uniting round the stem. Flowers about the size of a pin's head, on short pedicels. Sepals oblong, obtuse, united at the base. Petals oblong, obtuse, white. Stamens shorter than the petals: filaments slender: anthers roundish. Hypogynous scales none? Carpels membranaceous, slightly united. Seeds oblong; the testa crustaceous, striate and dotted. Albumen very thin. Embryo conformed to the seed: cotyledons short: radicle thick.

On the banks of the Hudson one or two miles north of Peekskill (*Dr. Mead*). Very nearly related to *T. aquatica* of Europe.

2. SEDUM. *Linn.; Endl. gen.* 4622. *STONECROP.*

[From the Latin, *sedo*, to sit; the plants of this genus appearing to sit on naked rocks.]

Sepals 5 (sometimes 4 – 8), more or less united at the base, often resembling the leaves. Petals distinct, mostly spreading. Stamens twice the number of the petals. Carpels as numerous as the sepals, many-seeded, with a scale at the base of each. — Herbaceous or rarely suffrutescent plants, mostly branching from the base. Leaves alternate or scattered, sometimes opposite or verticillate, usually crowded on the sterile branches. Flowers cymose.

1. SEDUM TELEPHIOIDES, *Michx.* *American Orpine.*

Leaves flat, ovate or oval, attenuate at the base, rather acute, somewhat toothed, smooth; stem erect; cymes paniculate-corymbose, densely flowered; stamens 10, scarcely exceeding the ovate-lanceolate petals.—*Michx. fl.* 1. *p.* 277; *Pursh, fl.* 1. *p.* 324; *Ell. sk.* 1. *p.* 529; *Torr. fl.* 1. *p.* 464; *DC. prodr.* 3. *p.* 402; *Torr. & Gr. fl. N. Am.* 1. *p.* 558.

Perennial. Stem about a foot high, simple, leafy. Leaves about an inch and a half long, smooth and fleshy, broadly oval, obtusely toothed. Cymes compound, crowded, with small leafy bracts interspersed. Sepals lanceolate-obtuse. Petals elliptical-oblong, pale purple, twice as long as the calyx.

Shore of Seneca Lake (*Prof. J. Hall*). I have not seen the plant from this locality, and it may possibly be the following, which it greatly resembles.

2. SEDUM TELEPHIUM, *Linn.* *Orpine*, or *Live-forever.*

Leaves flat, oblong and oval, attenuate at the base, toothed, smooth; stem erect; cymes corymbose; stamens shorter than the corolla.—*Engl. bot. t.* 1319; *DC. plant. grass. p.* 92, *and prodr.* 3. *p.* 402.

Differs from the preceding chiefly in the more obtuse leaves and shorter stamens.

Rocks; Catskill Mountains, particularly near the *Mountain House*. In fields, Orville, Onondaga county (*Dr. Bradley*). A naturalized plant of European origin, and very common in gardens.

3. PENTHORUM. *Gronov.; Lam. ill. t.* 390; *Endl. gen.* 4625.

VIRGINIAN STONECROP.

[From the Greek, *pente*, five, and *oros*, a column; in allusion to the 5 carpels.]

Sepals 5, united at the base. Petals none (always?). Stamens 10. Scales at the carpels none. Carpels united into a 5-angled, 5-celled capsule, with 5 diverging beaks, dehiscent by the separation of the beak with the back part of each carpel. Seeds numerous, minute. — Erect perennial herbs, not succulent, with alternate membranaceous and serrate leaves, and yellowish flowers which are unilateral on the simple branches of the cyme.

1. PENTHORUM SEDOIDES, *Linn.* *Virginian Stonecrop.*

Stem somewhat branched; leaves lanceolate, acute at each end, almost sessile; branches of the cyme many-flowered; seeds elliptical, acute at one end. — *Linn. act. Upsal.* (1774), *p.* 12. *t.* 2; *Michx. fl.* 1. *p.* 278; *Pursh, fl.* 1. *p.* 323; *Ell. sk.* 1. *p.* 528; *Torr. fl.* 1. *p.* 463; *Bigel. fl. Bost. p.* 184; *DC. prodr.* 3. *p.* 414; *Beck, bot. p.* 133; *Darlingt. fl. Cest. p.* 281; *Torr. & Gr. fl. N. Am.* 1. *p.* 462.

Stem about a foot high, terete below, somewhat angular above. Leaves 2 – 4 inches long, acutely and unequally serrate, smooth on both sides. Cymes pedunculate, terminating the branches, each with 3 – 4 recurved divisions, which (as well as the peduncles and short pedicels) are glandularly pubescent. Calyx spreading; the segments ovate, acute, entire or with several minute denticulations. Petals none in any of my specimens. Stamens longer than the ovaries: filaments smooth: anthers minute, oblong. Ovaries adherent to the style at the base, abruptly beaked with the styles: stigmas small, capitate. Carpels sometimes 6, the dehiscence taking place by a vertical line on each side of each carpel, between the ventral and dorsal sutures; the back and the style falling away, leaving the ventral portions and placentæ in the axis. Seeds very numerous, surrounding the projecting placenta, light brown, very rough under a lens.

Low wet places; common. July – September.

ORDER XLVI. SAXIFRAGACEÆ. *Juss.* THE SAXIFRAGE TRIBE.

Sepals 4 – 5, united or nearly distinct. Petals as many as the sepals and alternate with them, sometimes wanting. Stamens as many or twice as many as the petals, and inserted with them into the throat of the calyx. Ovary either free from the calyx or coherent with the tube, of 2 or sometimes of 3 – 5 or more carpels, which are either partially or completely united, 1-celled with parietal placentæ, or with as many cells as carpels and the placentæ in the axis: ovules mostly numerous, anatropous: styles distinct or more or less united. Capsules mostly with septicidal dehiscence. Embryo straight, in the axis of fleshy albumen. — Herbs or shrubby plants, with alternate or opposite leaves. Inflorescence various.

Suborder SAXIFRAGEÆ. *DC.*

Æstivation of the petals imbricate. Capsule usually beaked; the distinct summits of the carpels opening along the inner suture.— Herbs; the base of the petioles sometimes dilated, and resembling stipules.

CONSPECTUS OF THE GENERA.

1. SAXIFRAGA. Sepals imbricate. Petals 5, entire. Stamens 10. Capsule 2-celled below. Seeds smooth or wrinkled.
2. HEUCHERA. Calyx campanulate, 5-cleft, imbricate. Petals 5, entire. Stamens 5. Capsule one-celled. Seeds muricate or hispid.
3. MITELLA. Calyx campanulate, 5-cleft, valvate. Petals 5, pinnatifid. Stamens 5 or 10. Capsule one-celled. Seeds shining.
4. TIARELLA. Calyx campanulate, 5-parted, valvate. Petals 5, entire. Stamens 10. Capsule 2-celled. Seeds smooth and shining.
5. CHRYSOSPLENIUM. Calyx 4 – 5-lobed, colored inside. Petals none. Stamens 8 – 10. Capsule 1-celled.

1. SAXIFRAGA. *Linn.; R. Brown in Parry's 1st voy. suppl. p. 273; Endl. gen. 4634.*

SAXIFRAGE.

[From the Latin, *saxum*, a rock, and *frango*, to break; many of the species growing in the cracks or crevices of rocks.]

Calyx free, or cohering with the base of the ovary: sepals 5, more or less united, imbricate in æstivation. Petals 5, entire Styles 2. Capsule adhering to the calyx below, or free, mostly of 2 more or less united carpels, 2-beaked, 2-celled below, many-seeded, opening by a chink between the spreading beaks. Seeds smooth or wrinkled; the testa not separable from the nucleus.— Perennial (rarely annual) herbs. Radical leaves usually in a rosulate cluster; the cauline ones mostly alternate.

1. Saxifraga Virginiensis, *Michx.* *Virginian Saxifrage.*

Leaves radical, more or less spatulate-obovate, rather thick, crenately toothed, tapering at the base into a broad petiole; scape nearly leafless, paniculately branched at the summit; flowers in dense or finally open cymose clusters; calyx adherent only to the base of the ovary; petals oblong, obtuse, twice as long as the calyx; carpels united at the base, at length divaricate.—*Michx. fl.* 1. *p.* 269; *Pursh, fl.* 1. *p.* 310; *Don, monog. Saxifr. in Linn. trans.* 13. *p.* 386; *Ell. sk.* 1. *p.* 311; *Torr. fl.* 1. *p.* 444; *DC. prodr.* 4. *p.* 39; *Hook. fl. Bor.-Am.* 1. *p.* 248; *Beck, bot. p.* 137; *Darlingt. fl. Cest. p.* 269; *Torr. & Gr. fl. N. Am.* 1. *p.* 571. S. vernalis, *Willd. hort. Berol. t.* 43; *Bigel. fl. Bost. p.* 177; *Hook. l. c.* S. nivalis, *Muhl. cat. p.* 45. S. elongata, *Sternb. Saxifr. p.* 9. *t.* 4.

Rhizoma thick, short. Leaves in a radical spreading tuft, about an inch long, rather thick, minutely pubescent. Scape 4 – 12 inches high, fleshy, naked, viscous-pubescent. Panicle when young close and compact, at length spreading and rather loose. Segments of the calyx ovate, acute or obtuse, reddish at the tip. Petals white, with branching veins, which are distinct in the dried, but obscure in the living plant. Stamens about as long as the calyx: anthers roundish. Capsule purple when mature; the beaks widely diverging.

On rocks and hill-sides; common. April – June.

2. Saxifraga Pennsylvanica, *Linn.* *Pennsylvanian Saxifrage.*

Leaves oblanceolate, rather acute, attenuate at the base into a long naked petiole, obscurely denticulate, slightly pubescent; scape naked, viscous-pubescent; cymes in a large oblong panicle, finally loose; flowers pedicellate; segments of the calyx triangular-lanceolate, recurved, scarcely as long as the linear-lanceolate one-nerved petals, the tube adherent to the base of the ovary only; carpels in the mature fruit distinct above.—*Linn. sp.* 1. *p.* 399 (excl. syn. *Pluk.*); *Michx. fl.* 1. *p.* 269; *Pursh, fl.* 1. *p.* 211; *Don, Saxifr. l. c. p.* 384; *Torr. fl.* 1. *p.* 344; *Bigel. fl. Bost. p.* 177; *DC. prodr.* 4. *p.* 39; *Hook. fl. Bor.-Am.* 1. *p.* 249; *Beck, bot. p.* 138; *Darlingt. fl. Cest. p.* 270; *Torr. & Gr. fl. N. Am.* 1. *p.* 571. Saxifraga, &c. *Dill. hort. Elth. t.* 253. *f.* 328.

Rhizoma short and thick. Leaves all radical, 4 – 8 inches long, rather thin, pale green, slightly ciliate and pubescent. Scape 1 – 3 feet high, somewhat succulent. Panicle at first contracted; the branches at length distant, with a small lanceolate leafy bract at the base of each. Flowers small. Petals greenish-yellow. Stamens longer than the calyx: anthers purplish-orange. Capsule free from the calyx nearly to the base; the carpels distinct more than half their length, and somewhat recurved. Seeds very numerous and minute, angular, dark brown.

In swamps and wet meadows; common. May – June.

2. HEUCHERA. *Linn.; R. Brown in Richards. app. to Frankl. nar. ed.* 2. *p.* 52. *t.* 29; *Endl. gen.* 4639. *ALUM-ROOT.*

[Named in honor of JOHN HENRY DE HEUCHER, a German botanist of the last century.]

Calyx campanulate, coherent with the ovary, 5-cleft, sometimes unequal; the segments obtuse. Petals 5, small, entire. Stamens 5, inserted with the petals into the throat of the calyx. Styles 2. Capsule 1-celled, with 2 parietal placentæ, many-seeded, 2-beaked, opening between the beaks. Seeds horizontal, muricate or hispid. — Perennial, mostly stemless plants. Radical leaves on long petioles, roundish-cordate, lobed and crenate or incised; cauline ones, when present, alternate. Stipules adnate to the base of the petiole, free above. Flowers in compound cymose panicles.

1. HEUCHERA AMERICANA, *Linn.* *Common Alum-root.*

Roughish and somewhat viscidly pubescent; scape naked; leaves roundish-cordate, 7 – 9-lobed; the lobes very short and rounded, crenate-dentate, with short and broad mucronate teeth; panicle elongated, loose, many-flowered; the pedicels divaricate; petals spatulate, about the length of the calyx-segments; stamens at length much exserted. — *Linn. sp.* 1. *p.* 226; *Ell. sk.* 1. *p.* 337; *Torr. fl.* 1. *p.* 280; *Bart. veg. mat. med. t.* 40; *Bigel. fl. Bost. p.* 106; *DC. prodr.* 4. *p.* 51; *Beck, bot. p.* 139; *Darlingt. fl. Cest. p.* 175; *Torr. & Gr. fl. N. Am.* 1. *p.* 577. H. Cortusa, *Michx. fl.* 1. *p.* 171. H. viscida, *Pursh, fl.* 1. *p.* 187.

Rhizoma thick and astringent. Leaves all radical, 3 – 4 inches in diameter, deeply cordate, palmately veined, strigosely pubescent on both sides: petioles 3 – 10 inches long. Scape erect, 2 – 4 feet high, very rarely with one or two small leaves. Panicle at first contracted, finally nearly a foot in length, with linear bracts at the base of the divisions. Calyx turbinate, 10-striate, with ovate-obtuse segments, glandularly pubescent. Petals small, purplish or nearly white. Stamens 2 – 3 times as long as the petals: anthers orange-yellow. Capsule ovoid, acuminate, opening between the beaks. Seeds oblong, nearly black.

Shady rocky woods, and banks of rivers; common. May – June. The root or rhizoma is a powerful astringent. See *Wood & Bache's U. S. Dispens. p.* 349.

3. MITELLA. *Tourn.; Lam. ill. t.* 373; *Torr. & Gr. fl. N. Am.* 1. *p.* 585.

FALSE SANICLE. BISHOP'S CAP.

[A diminutive of *mitra*, a mitre or cap; so named from the form of the seed-vessel.]

Calyx campanulate, 5-cleft, adherent to the ovary at the base: æstivation valvate. Petals 5, pinnatifid (rarely 3-cleft). Stamens 10 or 5, included. Styles 2, short, diverging. Capsule one-celled; the placentæ parietal or at the base, many-seeded. Seeds smooth and shining. — Perennial herbs, with mostly radical, cordate, lobed or crenate leaves. Scapes slender. Flowers small, in a simple spiked raceme.

§. EUMITELLA, Torr. & Gr. *Petals pectinate-pinnatifid: stamens* 10: *filaments short: calyx adherent only to the base of the ovary: stigmas obtuse and simple: placentæ bearing ovules at the base; mature seeds few, ascending: scape with* 1 – 2 *alternate or opposite leaves, or naked.*

1. MITELLA DIPHYLLA, *Linn.* *Common Bishop's-cap.*

Leaves cordate, acute, slightly 3 – 5-lobed, serrate-toothed, the radical ones on long petioles; caulines ones 2, opposite, sessile; scape many-flowered. — *Linn sp.* 1. *p.* 406; *Lam. ill. t.* 373. *f.* 1; *Michx. fl.* 1. *p.* 270; *Schk. hand.* 1. *t.* 120, fide *Pursh, fl.* 1. *p.* 213; *Bart. fl. Am. Sept.* 3. *t.* 89; *Torr. fl.* 1. *p.* 246; *Bigel. fl. Bost. p.* 178; *DC. prodr.* 4. *p.* 49; *Beck, bot. p.* 138; *Darlingt. fl. Cest. p.* 271; *Torr. & Gr. fl. N. Am.* 1. *p.* 586.

Plant pubescent. Radical leaves deeply cordate, 1 – 2 inches in diameter; the petiole 2 – 4 inches long: cauline leaves about the middle of the scape, longer and less cordate than the radical ones; sometimes a third occurs near the flowers. Scape 12 – 18 inches high, erect, 10 – 15-flowered, in fruit 5 – 8 inches long: pedicels shorter than the flowers: bracts almost wanting. Calyx-segments and petals white, the latter recurved. Styles very short: stigmas minute. Capsule 2-valved at the summit, spreading out nearly flat when it bursts, the black shining seeds remaining for some time attached to the basic placentæ.

Rocky and shady moist banks, in rich soil. *Fl.* April – May. *Fr.* June.

2. MITELLA NUDA, *Linn.* *Stoloniferous Bishop's-cap.*

Stem usually stoloniferous; radical leaves roundish-cordate or somewhat reniform, on long petioles, slightly crenate-lobed or doubly crenate; scape filiform, few-flowered, naked or with a single sessile leaf; petals pinnatifid, with distant filiform segments.—*Linn. spic.* 1. *p.* 408; *Willd. sp.* 2. *p.* 660; *DC. prodr.* 4. *p.* 49; *Hook. fl. Bor.-Am.* 1. *p.* 240; *Torr. & Gr. fl. N. Am.* 1. *p.* 586. Mitella scapo nudo, &c. *Gmel. fl. Sibir.* 4. *p.* 175. *t.* 68. *f.* 2. M. cordifolia, *Lam. ill. t.* 373. *f.* 3; *Pursh, fl.* 1. *p.* 314; *Torr. fl.* 1. *p.* 446; *DC. l. c.* M. reniformis, *Lam. l. c. t.* 373. *f.* 2. M. prostrata, *Michx. l. c.*

Stems or rhizomas slender, creeping, throwing up scapes and tufts of radical leaves at the extremity, and also, after flowering, producing filiform leafy stolons. Leaves 1 – 1½ inch in diameter, hispid with a few stiff hairs on both surfaces; petioles retrorsely hispid: cauline leaves much smaller than the radical ones. Scape about a span high, 5 – 10-flowered; the lower pedicels often 2-flowered. Flowers greenish-white. Calyx spreading; the segments ovate. Petals pectinately cut into long, very slender, distant segments. Stamens half the length of the calyx. Styles very short, spreading. Seeds 8 – 10, attached to each nearly basic placenta.

Moist shady woods, and in sphagnous swamps. Northern and western part of the State; not found south of Saratoga. May – June. A very neat little plant.

4. TIARELLA. *Linn.; Lam. ill. t.* 373; *Endl. gen.* 4643. *MITRE-WORT.*

[From *tiara*, a kind of head-dress or mitre; in allusion to the form of the capsule.]

Calyx campanulate, nearly free from the ovary, 5-parted, valvate. Petals 5, entire. Stamens 10: filaments exserted. Styles 2: stigmas simple. Capsule membranaceous, 1-celled, with 2-parietal placentæ, 2-valved, the valves very unequal. Seeds few, near the base of the capsule, smooth and shining. — Perennial herbs, with simple cordate or trifoliolate incised and serrate leaves. Flowers small, paniculate or racemose, white. Bracts minute.

1. TIARELLA CORDIFOLIA, *Linn.* *Heart-leaved Mitre-wort.*

Leaves simple, cordate, acutely lobed, and unequally dentate with mucronate teeth, strigosely hairy, pubescent underneath; scape naked; raceme simple; petals oblong, clawed. — *Linn. sp.* 1. *p.* 405; *Lam. ill. t.* 373 *f.* 1; *Michx. fl.* 1. *p.* 271; *Bot. mag. t.* 1589; *Pursh, fl.* 1. *p.* 313; *Torr. fl.* 1. *p.* 445; *Bigel. fl. Bost. p.* 178; *DC. prodr.* 4. *p.* 50; *Torr. & Gr. fl. N. Am.* 1. *p.* 587.

Stolons creeping, leafy. Radical leaves on long petioles, 2 – 3 inches in diameter. Scape 6 – 12 inches high, sometimes with a small leaf about the middle, roughish-pubescent. Raceme many-flowered; the pedicels 4 – 6 lines long. Segments of the calyx white, obovate-oblong, obtuse. Petals white, spreading, as long as the calyx. Stamens longer than the petals. Ovary of 2 unequal carpels, which are distinct at the summit and attenuated into short styles, opening by the inner suture at a very early period. Capsule elongated: valves oblong, very unequal, erect, or very slightly diverging. Seeds black and shining, with a prominent raphe.

Shady moist woods, and in swamps; northern and western part of the State. May – June.

5. CHRYSOSPLENIUM. *Tourn.; Endl. gen.* 4638. *GOLDEN SAXIFRAGE.*

[From the Greek, *chrysos*, gold, and *splen*, the spleen; a figurative name, given in allusion to the supposed medicinal virtues of the genus.]

Calyx-tube cohering with the ovary, 4 – 5-lobed; the lobes colored inside. Petals none. Stamens 8 – 10, inserted on the margin of a toothed disk that surrounds the ovary. Styles 2, distinct, short, tapering. Capsule with 2 short spreading beaks, 1-celled with 2 parietal placentæ at the base, 2-valved at the summit. Seeds numerous, spherical. — Annual or perennial, smooth, subaquatic, and mostly prostrate plants, with somewhat fleshy alternate or opposite crenate leaves, and small yellowish-green flowers.

1. CHRYSOSPLENIUM AMERICANUM, *Schwein.* *Golden Saxifrage.*

Stems prostrate, dichotomous above; leaves opposite, the upper ones often alternate,

roundish-ovate, obscurely crenate-lobed ; flowers dichotomal, distant, nearly sessile. — *Schweinitz, mss.; Hook. fl. Bor.-Am.* 1. *p.* 242 ; *Darlingt. fl. Cest. p.* 270 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 589. C. oppositifolium, *Michx. fl.* 1. *p.* 269 ; *Pursh, fl.* 1. *p.* 299 ; *Ell. sk.* 1. *p.* 511 ; *Torr. fl.* 1. *p.* 445 ; *Bigel. fl. Bost. p.* 154, not of *Linn.*

Root perennial. Stems spreading and often forming a dense mat ; the flowering branches sometimes assurgent. Leaves about half an inch in diameter, often broader than long, abruptly narrowed at the base into a distinct petiole. Flowers scarcely more than 2 lines in diameter, on very short pedicels in the uppermost forks of the stem, and terminal. Calyx mostly 4-cleft, green and slightly purple inside. Stamens mostly 8, very short : filaments inserted into the indentations of the purplish disk : anthers at first orange-red, at length turning brown. Styles divaricate. Capsule dehiscent between the two short beaks. Seeds 10 – 12, hispid, brownish.

About springs and in brooks, usually in shady places ; common. April – May. This species was for a long time regarded as the *C. oppositifolium* of Europe. The latter is, however, a much stouter plant, with larger yellow flowers. The late Mr. Schweinitz first pointed out the difference between the two species.

GROUP 17. *Ovary compound, 2- (rarely 3 – 5-) celled, with a single ovule suspended from the summit of each cell. Stamens as many as the petals (or numerous in* FOTHERGILLA) *and lobes of the adherent calyx.*

ORDER XLVII. HAMAMELACEÆ. *R. Br.* THE WITCH-HAZEL TRIBE.

Calyx 4 – 5-cleft, or with 5 – 7 obscure teeth ; the tube more or less adherent. Petals 4 – 5, long and narrow, rarely wanting. Stamens either twice the number of the petals, the alternate ones sterile and scale-like ; or (in FOTHERGILLA) numerous and all fertile : cells of the anthers opening by valves. Ovary composed of 2 united carpels, the summit free from the calyx : styles 2, distinct. Capsules cartilaginous or bony, 2-beaked, 2-celled, dehiscent at the summit. Seeds bony. Embryo straight, in the axis of fleshy albumen.— Shrubs or small trees, with alternate simple feather-veined leaves and deciduous stipules. Flowers often polygamous, in sessile fascicles or heads.

1. HAMAMELIS. *Linn.; Endl. gen.* 4591. *WITCH HAZEL.*

[Origin of the name uncertain.]

Calyx 4-parted, with 2 – 3 bracteoles at the base. Petals 4, very long and linear, withering. Fertile stamens 4 : filaments very short : anthers 2-celled ; the cells opening by a lid-like valve. Sterile stamens scale-like, and opposite the petals. Styles 2, short. Capsule thick and somewhat woody ; the base coherent with the calyx-tube : endocarp separating and enclosing the seed, at length bursting elastically into two pieces. Seeds oblong : testa shining, crustaceous. — Shrubs or small trees. Leaves on short petioles, sinuate-toothed. Clusters of flowers axillary. Petals yellow.

1. HAMAMELIS VIRGINICA, *Linn.* *Witch Hazel.*

Heads of flowers surrounded with a scale-like 3-leaved involucre ; leaves obovate or oval, repandly or sinuately toothed, unequal and slightly cordate at the base, roughened underneath with elevated points. — *Linn. sp.* 1. *p.* 116 ; *Catesb. Carol.* 3. *t.* 2 ; *Wang. Amer. p.* 89. *t.* 29. *f.* 62 ; *Michx. fl.* 1. *p.* 100 ; *Pursh, fl.* 1. *p.* 116 ; *Ell. sk.* 1. *p.* 219 ; *Nutt. gen.* 1. *p.* 107 ; *Torr. fl.* 1. *p.* 192 ; *Bart. fl. Am. Sept.* 3. *t.* 78 ; *Bigel. fl. Bost. p.* 61 ; *DC. prodr.* 4. *p.* 268 ; *Beck, bot. p.* 152 ; *Darlingt. fl. Cest. p.* 114 ; "*Guimp. Otto & Hayne, holz. t.* 75." H. macrophylla, *Pursh, l. c.*

A shrub 6 – 12 feet high, often with several stems, which are sometimes 4 inches in diameter near the base ; the branches numerous, long and flexuous. Leaves 3 – 5 inches long, clothed with a stellate pubescence when young, nearly smooth when old ; the petioles about half an inch long. Flowers usually three together, proceeding from a bud-like pubescent involucre, which is supported on a short axillary peduncle. Calyx (and bracteoles) pubescent; the segments recurved. Petals about three-fourths of an inch long and scarcely a line wide, somewhat crisped, in the bud spirally involute. Fertile stamens much shorter than the sterile ones : anthers adnate, introrse ; the cells rather distant, opening on the side by vertical valves. Sterile stamens flat, wedge-shaped, truncate. Capsule roundish-ovoid, hard and almost woody, the lower half invested by the persistent calyx, the upper half naked, bursting transversely to the dissepiment and through the short recurved beaks into two valves, and at length also the valves are 2-cleft : endocarp separating from the exocarp, and enclosing the seed, finally splitting lengthwise into two valves, black and glossy inside. Seeds narrowly oblong, smooth. Embryo large, flat, in the axis of thin fleshy albumen : cotyledons oval, veined.

Borders of moist woods, and banks of rivers. *Fl.* End of October – November. The fruit ripens about September the following year. The flowers begin to open just before or after the fall of the leaves ; rarely in the spring. As Nuttall suspected, Dr. Darlington found the flowers to be frequently polygamous.— It is hardly necessary to state, that the popular belief of this plant having the power of indicating the presence of water and ores, is utterly without foundation.

Order XLVIII. UMBELLIFERÆ. *Juss.* The Umbelliferous Tribe.

Calyx adherent to the ovary; the limb very small, 5-toothed or entire. Petals 5, usually inflexed at the point. Stamens 5, inserted with the petals on the margin of a disk which crowns the ovary. Ovary composed of two united carpels, invested with the calyx, 2-celled, with a solitary suspended anatropous ovule in each cell: styles 2, their bases often united and thickened (forming a *stylopodium*). Fruit dry, consisting of 2 indehiscent carpels (*mericarps*) which adhere by their faces (*commissure*), and also to a common axis (*carpophore*); at maturity separating from each other, and usually likewise from the axis, at the summit of which they are suspended. Carpels marked by several ribs or wings: in the intervening spaces (*intervals*) are lodged longitudinal canals or receptacles (*vittæ*),* filled with a colored volatile oil or turpentine; the vittæ are sometimes placed opposite the ribs, and in the commissure. Seeds usually cohering with the carpel. Embryo minute, at the base of copious fleshy or horny albumen. — Herbs, with hollow stems. Leaves mostly alternate, and pinnately or ternately divided; the petioles dilated and sheathing at the base. Flowers in umbels, commonly with involucres.

CONSPECTUS OF THE SECTIONS AND TRIBES.

Series 1. ORTHOSPERMÆ, *DC.* *Albumen flat or flattish on the face.*

* *Umbels simple or imperfectly compound, with the partial umbels capitate.*

Tribe I. Hydrocotyleæ. Fruit laterally compressed.

Tribe II. Saniculeæ. Fruit ovoid-globose.

** *Umbels compound; the rays more or less elongated: partial umbels not capitate.*

† *Fruit with primary ribs only.*

Tribe III. Ammineæ. Fruit compressed laterally, or didymous.

Tribe IV. Seselineæ. Fruit with the transverse section orbicular.

Tribe V. Angeliceæ. Fruit compressed dorsally; the margin dilated into a double wing.

Tribe VI. Peucedaneæ. Fruit compressed dorsally; the margin dilated into a single wing.

†† *Fruit with both primary and secondary ribs.*

Tribe VII. Daucineæ. Secondary ribs mostly winged: fruit terete, or somewhat dorsally compressed; the wings prickly.

Series 2. CAMPYLOSPERMÆ, *DC.* *Albumen with a longitudinal groove internally, or the margins involute.*

Tribe VIII. Scandicineæ. Fruit elongated, laterally compressed, furnished with primary ribs only.

Tribe IX. Smyrnieæ. Fruit turgid, laterally compressed, furnished with primary ribs only.

Series 3. CŒLOSPERMÆ, *DC.* *Albumen involute at the apex and base.*

Tribe X. Coriandreæ. Fruit laterally compressed, didymous or globose.

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* The *vittæ* are best seen in a thin transverse slice of the fruit. They are often perceptible, however, externally.

Series 1. ORTHOSPERMÆ, *DC.* *Inner face of the seed and albumen plane, neither convolute nor involute.*

TRIBE I. *HYDROCOTYLEÆ. Spreng.; DC.*

Fruit laterally compressed. Carpels convex or rarely acute on the back: primary ribs 5, *sometimes obscure; the lateral ones either marginal, or on the face of the commissure; intermediate ones most prominent: secondary ribs sometimes filiform, sometimes almost or entirely wanting. Vittæ seldom present. Seed flattish on the face.—Umbels simple or imperfectly compound.*

1. HYDROCOTYLE. *Tourn.; Lam. ill. t.* 188; *DC. prodr.* 4. *p.* 59; *Endl. gen.* 4355.

MARSH PENNY-WORT.

[From the Greek, *hydor*, water, and *cotyle*, a cup; the species grow in wet places, and the leaves of some of them are a little concave and stalked in the centre.]

Margin of the calyx obsolete. Petals ovate, entire, acute, spreading, straight at the point. Fruit nearly orbicular, flattened laterally. Carpels without vittæ: primary ribs 5, filiform; the dorsal and lateral ones often obsolete; intermediate ones enlarged. — Slender plants, growing in wet places, with creeping stems and peltate or cordate leaves. Umbels simple. Involucre few-leaved. Flowers sessile or pedicellate, white.

1. HYDROCOTYLE AMERICANA, *Linn.* *American Marsh Penny-wort.*

Plant very smooth and shining; leaves orbicular-reniform, slightly lobed and doubly crenate; umbels nearly sessile, 3 – 5-flowered; fruit orbicular-ovate, 2-ribbed on each side. — *Linn. sp.* 1. *p.* 234; *Michx. fl.* 1. *p.* 162; *Pursh, fl.* 1. *p.* 162; *A. Rich. Hydrocot. in ann. sc. phys.* 1820, 4. *p.* 184. *t.* 55. *f.* 10; *Ell. sk.* 1. *p.* 348; *Torr. fl.* 1. *p.* 303; *Bigel. fl. Bost. p.* 109; *DC. prodr.* 4. *p.* 64; *Beck, bot. p.* 140; *Darlingt. fl. Cest. p.* 183; *Torr. & Gr. fl. N. Am.* 1. *p.* 599.

Stems very slender, branching, terete, with long suckers. Leaves thin, 1 – 2 inches in diameter, palmately about 9-nerved: petiole as long as the lamina, inserted at the base of the sinus. Flowers very small, greenish, often with a tinge of purple. Fruit scarcely a line wide: ribs filiform: intervals smooth.

Wet shady places; common. *Fl.* July – August. *Fr.* September.

2. HYDROCOTYLE UMBELLATA, *Linn.* *Many-flowered Marsh Penny-wort.*

Smooth; leaves peltate, orbicular, emarginate at the base, doubly crenate; scape usually longer than the petioles; umbel 20 – 30-flowered, sometimes proliferous; pedicels slender; fruit didymous, 2-ribbed on each side. — *Linn. sp.* 1. *p.* 234; *Spreng. umb. p.* 1. *t.* 1; *Ell. sk.* 1. *p.* 346; *Torr. fl.* 1. *p.* 303; *Bigel. fl. Bost. p.* 109; *DC. prodr.* 4. *p.* 60; *Beck, bot.*

p. 140; *Torr. & Gr. fl. N. Am.* 1. *p.* 599. H. umbellulata, *Michx. fl.* 1. *p.* 161; *A. Richard, l. c. t.* 52. *f.* 3.

Perennial. Stem creeping and rooting in the mud, or partly floating. Leaves 1 – 2 inches in diameter, with about 12 broad obtuse shallow lobes or crenatures, and as many radiating veins: petioles 4 – 8 inches long. Umbels nearly an inch in diameter, usually simple. Fruit a little emarginate at the base and apex, broader than long, somewhat tumid: ribs slightly elevated.

Overflowed boggy places and shallow ponds. Near Albany (*Dr. Beck and Mr. Tracy*); Suffolk county, Long Island; Long Pond, South Salem, Westchester county (*Dr. Mead*). July – September.

2. CRANTZIA. *Nutt. gen.* 1. *p.* 177; *Endl. gen.* 4356. CRANTZIA.

[In memory of Prof. H. I. N. CRANTZ, an Austrian botanist of the last century, author of a work on Umbelliferæ, &c.]

Calyx-tube somewhat globose; the margin obsolete. Petals roundish, entire, obtuse. Fruit nearly globose; the commissure excavated, nearly orbicular, with 2 vittæ. Carpels unequal, with 5 filiform ribs; 3 of them dorsal and narrow, the others marginal, and united with the thick corky margin which surrounds the fruit: intervals with single vittæ. Carpophore adhering to the carpels, and indistinct. Transverse section of the seed orbicular. — Very small creeping herbs, with linear entire succulent leaves, marked with transverse lines. Umbels few-flowered, simple, involucred. Flowers white or rose-color, pedicellate. Hardly belonging to this tribe.

1. CRANTZIA LINEATA, *Nutt.* *Narrow-leaved Crantzia.*

Leaves cuneate-linear, obtuse, shorter than the peduncles. — *Nutt. l. c.; DC. prodr.* 4. *p.* 71; *Torr. & Gr. fl. N. Am.* 1. *p.* 600. Hydrocotyle lineata, *Michx. fl.* 1. *p.* 62; *A. Richard, l. c. t.* 68. *f.* 38; *Ell. sk.* 1. *p.* 347; *Torr. fl.* 1. *p.* 304. Elatine foliis oppositis, *Gron. fl. Virg. p.* 62.

Perennial. Stem creeping and rooting in mud, throwing up leaves and peduncles at the joints. Leaves about 2 at each joint, 1 – 2 inches long and a line and a half wide, erect, marked with 4 – 6 transverse lines; the longitudinal veins obsolete. Umbels 8 – 10-flowered; the pedicels 3 – 4 lines long. Involucre of 5 – 6 small lanceolate leaflets. Petals white, with a tinge of red. Styles short and recurved. Fruit about a line in diameter: commissure oval, with a broad white corky margin.

Muddy banks of rivers, generally where the water is brackish. West-Point (*Prof. Bailey*); near Peekskill (*Dr. Mead*).

TRIBE II. *SANICULEÆ. Koch; DC.*

Transverse section of the fruit somewhat orbicular. Carpels with 5 equal primary and no secondary ribs, or covered with scales or prickles. Vittæ none, or numerous when the fruit is prickly. Seeds flattish on the face. — Umbels fascicled or capitate, simple or somewhat irregularly compound.

3. SANICULA. *Tourn.; Endl. gen.* 4382. SANICLE.

[Named from the Latin, *sanio*, to heal; on account of its supposed medicinal virtues.]

Calyx-tube, in the fertile flowers, echinate; the teeth somewhat foliaceous and persistent. Petals erect, with a long inflexed point. Fruit ovate-globose, densely clothed with hooked prickles. Carpels without ribs: vittæ numerous. Carpophore indistinct. Seeds semi-globose — Perennial herbs. Radical leaves with long petioles, palmately or pinnatifidly lobed; the segments incised and serrate. Umbels with few rays: umbellets capitate; the flowers numerous, and mostly polygamous; sterile flowers small, with the calyx smooth. Involucre foliaceous; the leaflets often lobed. Leaflets of the involucels entire.

1. SANICULA MARILANDICA, *Linn.* (Plate XXXI.) *Long-styled Sanicle.*

Leaves digitately 5 – 7-parted, the segments incisely and mucronately serrate; sterile flowers numerous, distinctly pedicellate, and nearly as long as the fertile ones; styles long and recurved.— *Linn. sp.* 1. *p.* 235; "*Jacq. ic. rar. t.* 348;" *Michx. fl.* 1. *p.* 162; *Lam. ill. t.* 191. *f.* 2; *Torr. fl.* 1. *p.* 302; *DC. prodr.* 4. *p.* 84; *Beck, bot. p.* 141; *Darlingt. fl. Cest. p.* 184; *Torr. & Gr. fl. N. Am.* 1. *p.* 602 (in part).

Root consisting of numerous thick fasciculate fibres, slightly aromatic and stimulating. Stem about 2 feet high, branching at the summit. Radical leaves on long petioles, 3 – 5-parted to the base; the lateral segments deeply 2-parted; all the segments oblanceolate or cuneate-obovate: cauline leaves resembling the radical ones, but with much shorter petioles, or sessile. Primary and secondary divisions of the umbel 2 or 3, with a solitary umbellet in the forks, consisting chiefly of numerous staminate flowers. Involucral leaves mostly 2 – 3-parted at the base. Umbellets somewhat globose, consisting of two kinds of flowers. Staminate ones 10 – 15; the pedicels slender, 2 – 3 lines long. Calyx 5-parted to the base; the segments lanceolate, mucronate. Petals nearly white, or yellowish. Stamens exserted. No rudiments of an ovary or styles. Fertile flowers 2 – 6, sessile. Calyx-segments, petals and stamens as in the fertile ones. Styles at first nearly erect, at length recurved and nearly as long as the ovary. Fruit densely clothed throughout with strong hooked prickles, dilated and somewhat bulbous at the base, disposed in no regular order; at maturity, separating into two carpels, diverging, and remaining attached by their bases to the summit of the peduncle.

Woods and thickets; common. *Fl.* June – August. *Fr.* August – September.

2. SANICULA CANADENSIS, *Linn.* (Plate XXXII.) *Canadian Sanicle.*

Leaves digitately 3 – 5-parted, the segments incisely and mucronately serrate; sterile flowers few, slightly pedicellate and much shorter than the fertile ones; styles shorter than the prickles.— *Linn. sp.* 1. *p.* 235; *Willd. sp.* 1. *p.* 1366; *Muhl. cat. p.* 30; *DC. prodr.* 4. *p.* 84. S. Marilandica, *β.* Canadensis, *Torr. fl.* 1. *p.* 302.

Differs from the preceding species chiefly in the less divided leaves, fewer sterile flowers on much shorter pedicels, smaller fruit, and in the very short inconspicuous styles. The prickles of the fruit are also pretty regularly arranged in rows.

Woods and thickets; common. *Fl.* June – August. *Fr.* August – September. I am indebted to my valued friend, *J. Carey, Esq.*, for pointing out to me the principal diagnostic marks of our two species of *Sanicula*, and am now persuaded that they are quite distinct. By the differences in their styles alone, they can always be readily known. Both species are employed as domestic medicines, under the name of *Blacksnake-root;* being reputed diaphoretic, stimulant and stomachic.

TRIBE III. *AMMINEÆ. Koch.*

Fruit evidently compressed laterally, and usually somewhat didymous. Carpels with 5 *equal filiform and sometimes slightly winged primary ribs; the lateral ones marginal: secondary ribs none. Vittæ various. Seed gibbously convex on the back and flattish on the face, or terete.— Umbels perfectly compound.*

CONSPECTUS OF THE GENERA.

4. DISCOPLEURA. Fruit ovoid. Carpels with the 3 dorsal ribs filiform; the two lateral ones united with a thick corky accessory margin. Intervals with single vittæ.— Leaves finely cut.
5. BUPLEURUM. Calyx-teeth obsolete. Fruit ovoid-oblong, crowned with the depressed stylopodium. Carpels with 5 more or less prominent ribs, with or without vittæ.— Leaves undivided. Flowers yellow.
6. CICUTA. Calyx-teeth distinct. Fruit roundish, didymous. Carpels with 5 flattish equal ribs. Intervals with single vittæ.— Involucels many-leaved. Flowers white.
7. SIUM. Fruit ovoid or globose, somewhat didymous, crowned with the depressed stylopodium. Carpels with 5 rather obtuse ribs. Intervals usually with several vittæ.— Involucels many-leaved. Flowers white.
8. CRYPTOTÆNIA. Fruit linear-oblong, crowned with the short stylopodium and straight styles. Carpels with 5 equal filiform obtuse ribs. Vittæ very narrow; one beneath each rib, and one in each interval.— Leaves 3-parted. Involucre none. Involucels many-leaved. Flowers white.
9. ZIZIA. Fruit roundish or oval, somewhat didymous. Carpels with 5 or more or less prominent (not winged) equal ribs. Intervals with 1 – 3 vittæ.— Leaves ternately divided. Flowers yellow.

4. DISCOPLEURA. *DC. mem. Umb. p.* 38. *t.* 8 *&* 9; *Endl. gen.* 4398. *DISCOPLEURA.*

[From the Greek, *diskos*, a disk, and *pleuron*, a side; the two sides of the fruit being marked with a kind of disk.]

Calyx-teeth minute, subulate, persistent. Petals ovate, entire, with a minute inflexed point. Fruit ovoid. Carpels with the 3 dorsal ribs filiform, prominent and rather acute; the two

lateral ones united with a thick corky accessory margin. Intervals with single vittæ. Carpophore 2-cleft. Seed somewhat terete. — Annual smooth herbs. Leaves finely cut into narrow segments. Leaflets of the involucre pinnately 3 – 5-parted, or nearly entire. Flowers white.

1. DISCOPLEURA CAPILLACEA, *DC.* *Few-rayed Discopleura.*

Stem erect or procumbent; umbels 3 – 12-rayed; leaflets of the involucre 3 – 5, usually 3-cleft; fruit ovate. — *DC. l. c. t.* 8. *A. & prodr.* 4. *p.* 106; *Beck, bot. p.* 143; *Torr. & Gr. fl. N. Am.* 1. *p.* 607. Ammi majus, *Walt. fl. Car. p.* 113, not of *Linn.* A. capillaceum, *Michx. fl.* 1. *p.* 164; *Nutt. gen.* 1. *p.* 179; *Ell. sk.* 1. *p.* 349. Sison capillaceus, *Spreng. in Schult. syst.* 6. *p.* 411; *Torr. fl.* 1. *p.* 306.

Stem 10 – 18 inches high, flexuous and divaricately branched, deeply sulcate. Leaves ternately and pinnately cut; the segments remote, filiform and spreading. Involucral leaves sometimes bipinnatifid. Involucels of 2 – 3 filiform entire leaflets. Rays of the umbel usually not more than 8, about an inch long, rigid. Umbellets 5 – 10-flowered. Flowers very small. Anthers purple. Styles short, diverging. Fruit rather acute, about a line and a half in length.

Swamps, generally where the water is brackish; common on Long Island, and in the neighborhood of New-York. July – September.

5. BUPLEURUM. *Tourn.; Endl. gen.* 4414. *HARE'S-EAR.*

[From the Greek, *bous*, an ox, and *pleuron*, a rib; supposed to be in allusion to the ribbed leaves of some of the species.]

Margin of the calyx obsolete. Petals roundish, retuse, with an inflexed point. Fruit ovate-oblong, laterally compressed, crowned with the depressed stylopodium. Carpels with 5 more or less prominent ribs; the lateral ones marginal. Intervals with or without vittæ. Seed teretely convex, flattish on the face. — Herbaceous, or sometimes shrubby smooth plants. Leaves commonly entire. Involucres various. Flowers yellow.

The leaves in this genus are regarded by most modern botanists as destitute of lamina, and consisting of mere dilated petioles, or *phyllodia*.

1. BUPLEURUM ROTUNDIFOLIUM, *Linn.* *Thorough-wax. Modesty.*

Leaves broadly ovate, entire, perfoliate; involucre none; involucels of 5 ovate, mucronate, united leaflets. — *Linn. sp.* 1. *p* 236; *Engl. bot. t.* 99; *Beck, bot. p.* 145; *DC. prodr.* 4. *p.* 129; *Darlingt. fl. Cest. p.* 191; *Torr. & Gr. fl. N. Am.* 1. *p.* 609.

Annual. Stem about 1 – 2 feet high, branching. Leaves 1 – 2 inches long, glaucous underneath, perforated by the stem excentrically, acute. Umbels of 5 – 9 unequal rays. Involucels somewhat cup-shaped; the leaflets united at the base, longer than the small greenish-yellow flowers. Carpels with 5 slender ribs; the interstices without vittæ.

A weed about gardens and cultivated grounds; nearly naturalized in some places. June – August. Introduced from Europe.

6. CICUTA. *Linn.; Lam. ill. t.* 195; *Endl. gen.* 4391. COWBANE.

[A name given by the Latins to the hollow joints of the reed, of which they made their pipes. It was afterwards applied to this genus on account of its fistular stems.]

Margin of the calyx 5-toothed; the teeth acute. Petals obcordate; the point inflexed. Fruit roundish, laterally contracted, somewhat didymous. Carpels with 5 flattish equal ribs; the lateral ones marginal. Intervals filled with large single vittæ. Commissure with 2 vittæ. Carpophore 2-parted. Seed terete. — Perennial, smooth, poisonous plants, with hollow stems, growing in water or in swamps. Leaves tripinnately or triternately divided. Involucre few-leaved, or none. Involucels many-leaved. Flowers white.

1. CICUTA MACULATA, *Linn.* *Water Hemlock. Spotted Cowbane.*

Roots thick, oblong, fleshy; stem streaked with purple; leaves biternately divided; segments lanceolate, mucronately serrate.—*Linn. sp.* 1. *p.* 255; *Pursh, fl.* 1. *p.* 195; *Ell. sk.* 1. *p.* 257; *Bigel. med. bot.* 1. *t.* 12, *and fl. Bost. p.* 115; *Torr. fl.* 1. *p.* 308; *DC. prodr.* 4. *p.* 99; *Beck, bot. p.* 142; *Darlingt. fl. Cest. p.* 185; *Torr. & Gr. fl. N. Am.* 1. *p.* 610.

Root consisting of several fleshy diverging tubers, about the thickness of the finger. Stems 3 – 6 feet high, finely streaked with glaucous green and purple, sometimes spotted, at other times almost entirely purple; or, when growing in the shade, wholly green. Lower leaves on long petioles, the primary divisions ternate or quinate; the leaflets in each division 5 – 7, lowest ones often deeply 2 – 3-lobed, all of them petiolulate; primary veins terminating in the *notches* (instead of the *points*) of the serratures (as first noticed by Dr. Bigelow). Rays of the umbel 15 – 20 or more, slender, 1½ – 2 inches long. Involucre usually none, or only one or two small leaflets. Involucels of 5 – 6 linear leaflets. Fruit about a line and a half in diameter, nearly orbicular, aromatic, and somewhat resembling *anise:* ribs broad and prominent, yellowish-brown, lateral ones broadest: intervals purplish.

In swamps; very common. *Fl.* July – August. *Fr.* September.— The root of this plant is the most dangerous vegetable poison indigenous to the United States. It is frequently the cause of death in children, who mistake it for the "Sweet Cicely," or *Osmorhiza longistylis.* In the western part of the State, it is known by the name of *Beaver poison*, or *Musquash.* The active principle has not been insulated, but it is probably similar to the *conicine*, or the poisonous alkaline material of *Conium.*

2. CICUTA BULBIFERA, *Linn.* *Bulbiferous Water Hemlock.*

Roots thick, oblong, fleshy; axils of the branches and uppermost leaves bulbiferous; leaves bi-triternately divided; segments linear and linear-lanceolate, remotely and acutely toothed.— *Linn. sp.* 1. *p.* 255; *Michx. fl.* 1. *p.* 165; *Nutt. gen.* 1. *p.* 192; *Torr. fl.* 1. *p.* 308; *Bigel. fl. Bost. p.* 115; *DC. prodr.* 4. *p.* 99; *Torr. & Gr. fl. N. Am.* 1. *p.* 610.

Root as in the preceding species, but smaller. Stem 2 – 3 feet high, branching, striate, glaucous. Lower leaves on long petioles; upper ones nearly sessile, with sheathing petioles: segments usually not more than a line wide, the margin furnished with salient teeth, and also minutely serrulate. Bulbs about 2 lines long, ovate, acute, compressed, often several crowded close together, but always alternate, forming short spikes in the axils of simple and sometimes nearly opposite leaves: each bulb is a short branch or bud, the axis of which is thick, fleshy, and invested with several scales or rudimentary leaves. Umbels small, in the forks of the stem, about 12-rayed. Involucre none. Involucels of 5 – 6 small lanceolate leaflets. Flowers mostly abortive. Fruit not half as large as in the preceding species, only one of the carpels usually ripening: ribs nearly equal, thick, but not very prominent.

Swamps, and in ditches and on the margin of ponds; common in the northern and western part of the State; rare in the neighborhood of New-York. *Fl.* August. *Fr.* September – October. The veins of the leaves, as in *C. maculata*, terminate in the notches of the serratures.

7. SIUM. *Linn.* (partly); *Endl. gen.* 4413. *WATER PARSNEP.*

[From the Celtic word *siw*, signifying water; its usual place of growth. THEIS.]

Calyx-teeth small or obsolete. Petals obovate or emarginate, with an inflexed point. Fruit ovate or nearly globose, somewhat didymous, crowned with the depressed stylopodium. Carpels with 5 rather obtuse ribs, and usually with several vittæ in the intervals. Seeds somewhat terete.— Perennial, mostly aquatic herbs. Leaves pinnately divided; segments toothed or serrate: submerged leaves finely divided. Umbel and umbellets many-rayed. Involucre many-leaved.

1. SIUM LATIFOLIUM, *Linn.* *Broad-leaved Water Parsnep.*

Root creeping; stem sulcate-angular; segments of the leaves lanceolate, acuminate, serrate, rarely pinnatifid; teeth of the calyx elongated (*DC.*).— *Linn. sp.* 1. *p.* 251; *Nutt. gen.* 1. *p.* 186; *Bigel. fl. Bost. p.* 111; *Torr. fl.* 1. *p.* 311; *DC. prodr.* 4. *p.* 124?; *Hook. fl. Bor.-Am.* 1. *p.* 262; *Torr. & Gr. fl. N. Am.* 1. *p.* 611. S. occidentale, *Nutt. mss.*

Stem 2 – 4 feet high, branching. Segments of the leaves varying in breadth, but sometimes almost ovate-lanceolate; in the lower leaves, when submerged, pinnatifid or finely cut. Involucres of 6 – 12 narrowly lanceolate and usually reflexed leaflets. Umbels terminal. Calyx-teeth very minute. Ripe fruit not seen.

Swamps; rather common. July – August.

2. SIUM LINEARE, *Michx.* *Narrow-leaved Water Parsnep.*

Stem sulcate-angular; segments of the leaves linear-lanceolate and linear, acutely and finely serrate.— *Michx. fl.* 1. *p.* 167; *Nutt. gen.* 1. *p.* 186 (excl. syn. *Pursh*); *Torr. fl.* 1. *p.* 311;

DC. prodr. 1. *p.* 125; *Hook. fl. Bor.-Am.* 1. *p.* 262; *Torr. & Gr. fl. N. Am.* 1. *p.* 611. S. tenuifolium, *Muhl. cat. p.* 30.

Roots thick, fasciculate. Stem 2 – 5 feet high, rather rigid, erect. Segments of the leaves in 3 – 5 pairs, 2 – 4 inches long, mostly linear-lanceolate, but often linear and only 1 – 3 lines wide. Rays of the umbel about 20. Leaflets of the involucre 5 – 10, sometimes 2-cleft. Calyx-teeth very minute, acute, scarcely projecting beyond the margin of the stylopodium. Petals broadly obcordate, the point small and inflexed. Fruit broadly oval or orbicular, strongly ribbed; the ribs whitish. Intervals with 1 – 3 vittæ. Commissure with 2 – 4 vittæ.

Swamps; common. *Fl.* July – August. *Fr.* September. Our two species are still in an unsettled state, for want of the ripe fruit of the former. It is probable that they are not distinct, as the differences in the involucrum and breadth of the leaves, and number of the vittæ, are not constant. Whether they are distinct from the *Sium latifolium* of Europe, is also uncertain. In my specimens of that species, the calyx-teeth are nearly as short as in ours; but I have never seen it with the leaves so narrow, and so sharply serrate as in our *S. lineare.*

8. CRYPTOTÆNIA. *DC. mem. Umb. p.* 42; *Endl. gen.* 4409. HONE-WORT.

[From the Greek, *kryptos*, hidden, and *tainia*, a fillet; the narrow vittæ being concealed in the carpels.]

Margin of the calyx obsolete. Petals obcordate, with a narrow inflexed point. Fruit oblong-elliptical or ovoid, contracted at the sides, crowned with the short stylopodium and straight styles. Carpels with 5 equal filiform obtuse ribs; the lateral ones nearly marginal. Vittæ very narrow, one beneath each rib and one in each interval. Seed somewhat teretely convex; the face slightly concave. Carpophore free, 2-cleft.—Perennial, smooth, erect herbs. Root consisting of fasciculate fibres. Leaves 3-parted; the segments ovate, entire or 2 – 3-lobed, doubly serrate, with coarse mucronate teeth. Umbels numerous, somewhat panicled. Rays of the umbel and umbellets very unequal. Involucre none. Involucels none. Flowers white.

1. CRYPTOTÆNIA CANADENSIS, *DC.* *Common Hone-wort.*

Umbels opposite the leaves, and terminal; fruit oblong-elliptical.—*DC. prodr.* 4. *p.* 119; *Hook. fl. Bor.-Am.* 1. *p.* 262; *Beck, bot. p.* 144; *Darlingt. fl. Cest. p.* 189; *Torr. & Gr. fl. N. Am.* 1. *p.* 613. Sison Canadense, *Linn. sp.* 1. *p.* 252; *Michx. fl.* 1. *p.* 168; *Bigel. fl. Bost. p.* 114. Sium Canadense, *Lam. dict.* 1. *p.* 407. Chærophyllum Canadense, *Pers. syn.* 1. *p.* 320; *Pursh, fl.* 1. *p.* 195; *Ell. sk.* 1. *p.* 358. Myrrhis Canadensis, *Nutt. gen.* 1. *p.* 192; *Spreng. in Schult. syst.* 6. *p.* 516; *Torr. fl.* 1. *p.* 310. Myrrhis Canadensis trilobata, *Moris. hist.* 9. *t.* 11. *f.* 4.

Stem 1½ – 2 feet high, branched above, often purplish. Leaves very thin, and usually

more or less shining; segments 2 – 5 inches long, attenuated below, and serrate quite to the base: petioles broad and sheathing. Rays of the umbel 3 – 6, somewhat erect. Fruit about 3 lines long, often curved from the unequal growth of the carpels, dark olive-green when mature; the straight styles nearly one-third the length of the fruit.

Damp shady woods and thickets; common. *Fl.* June – August. *Fr.* September.

9. ZIZIA. *Koch, Umb. p.* 129; *Endl. gen.* 4392. *MEADOW PARSNEP.*

[In honor of I. B. Zizii, a German botanist.]

Margin of the calyx with 5 very short teeth. Petals oblong, with a long inflexed point. Fruit contracted laterally, somewhat didymous, roundish or oval. Carpels with 5 filiform, more or less prominent (but not winged), equal ribs; the lateral ones marginal: intervals with 1 – 3 vittæ. Commissure with 2 – 4 vittæ. Carpophore 2-parted. Seed very convex on the back, flat on the face. — Perennial herbs. Leaves ternately or biternately divided, with oblong or ovate segments; radical ones often cordate and entire. Involucre none. Involucels few-leaved. Flowers yellow.

§ 1. EUZIZIA, Torr. & Gr. *Carpels with prominent ribs: intervals with single vittæ: commissure with 2 vittæ.*

1. ZIZIA CORDATA, *Koch.* (Plate XXXIII.) *Heart-leaved Alexanders.*

Radical leaves simple, cordate, on long petioles, crenately toothed; stem-leaves nearly sessile, ternately divided; the segments ovate or ovate-oblong, serrate, lateral ones sometimes 2-parted nearly to the base. — *Koch, Umb. p.* 129, ex *DC. prodr.* 4. *p.* 100; *Hook. fl. Bor.-Am.* 1. *p.* 260; *Beck, bot. p.* 143; *Darlingt. fl. Cest. p.* 186. Smyrnium cordatum, *Walt. fl. Car. p.* 114; *Michx. fl.* 1. *p.* 170; *Ell. sk.* 1. *p.* 359; *Torr. fl.* 1. *p.* 307. S. trifoliatum, *Nutt. gen.* 1. *p.* 195 (excl. syn. *Linn.*). Thaspium cordatum, *var.* α. (in part), *Torr. & Gr. fl. N. Am.* 1. *p.* 615.

Stem about two feet high, usually smooth, or sometimes minutely pubescent. Radical leaves sometimes a little lobed, but commonly cordate and entire, 2 – 4 inches in diameter, the petioles 4 – 8 inches long: lower cauline leaves on very short sheathing petioles; the uppermost sessile, rather obtusely serrate. Umbels opposite the leaves, on long naked peduncles; the rays 6 – 10, about an inch in length, and twice as long in fruit. Involucels a mere entire border, or consisting of one or two small leaflets. Styles slender, about the length of the ovary. Fruit about a line and a half long, roundish-oval, dark purple when mature: dorsal ribs angularly prominent. Vittæ nearly as broad as the intervals, filled with a terebinthine bitterish oil.

Borders of woods, and thickets on hill-sides. *Fl.* May. *Fr.* July. Confounded, in the Flora of North America, with *Thaspium cordatum*, from the first variety of which it can hardly be distinguished except by the fruit.

2. ZIZIA AUREA, *Koch.* *Golden Meadow Parsnep.*

Lower leaves biternately, and the uppermost ternately divided; segments oblong-lanceolate or rhomboid, sharply serrate, the serratures cartilaginous on the margin.—*Koch, Umb. p.* 129, ex *DC. prodr.* 4. *p.* 100; *Hook. fl. Bor.-Am.* 1. *p.* 260; *Beck, bot. p.* 143; *Darlingt. fl. Cest. p.* 185; *Torr. & Gr. fl. N. Am.* 1. *p.* 614. Smyrnium aureum, *Linn. sp.* 1. *p.* 262; *Michx. fl.* 1. *p.* 171; *Ell. sk.* 1. *p.* 359. Sison aureus, *Spreng. in Schult. syst.* 6. *p.* 410.

Root branching, with thick fasciculate descending fibres. Stem about 2 feet high. Leaves all divided; the radical and lower cauline ones on long petioles; upper ones nearly sessile, sometimes biternately divided: leaflets 1 – 2 inches long, sometimes all, but usually only the middle one of each division attenuate at the base; the serratures, when old, with a distinct cartilaginous border. Umbels opposite the leaves and terminal, on very long naked peduncles; the rays 10 – 15, rigid and somewhat erect in fruit. Fruit about 2 lines long, oval, dark purple; the ribs rather prominent, but obtuse.

Woods, banks of rivers, etc. Highlands of New-York (*Dr. Barratt*). Differs from the preceding in the leaves being all divided, and more acutely serrate. The fruit of the two species can hardly be distinguished.

§ 2. TÆNIDIA, Torr. & Gr. *Carpels with slightly prominent ribs: intervals with three vittæ: commissure with four vittæ.*

3. ZIZIA INTEGERRIMA, *DC.* *Entire-leaved Zizia.*

Leaves all bi-triternately divided, the segments oblong-ovate, entire; rays of the umbel filiform, elongated. — *DC. in mem. hist. nat. Genev.* 4, *and prodr.* 4. *p.* 100; *Beck, bot. p.* 143; *Darlingt. fl. Cest. p.* 187; *Torr. & Gr. fl. N. Am.* 1. *p.* 614. Smyrnium integerrimum, *Linn. sp.* 1. *p.* 263; *Michx. fl.* 1. *p.* 171; *Pursh, fl.* 1. *p.* 196; *Nutt. gen.* 1. *p.* 195. Sison integerrimus, *Spreng. in Schult. syst.* 6. *p.* 410; *Torr. fl.* 1. *p.* 305.

Whole plant very smooth and somewhat glaucous. Stem two feet high, terete, slender. Leaves thin; the lowest ones on longish petioles, and biternate; upper ones with dilated sheathing petioles; alternate segments about an inch long, unequal at the base, and sometimes a little cordate. Umbels opposite the leaves; the rays numerous, 2 – 4 inches long. Umbellets many-flowered; many of the flowers abortive. Petals oval, with a narrow inflexed point. Fruit nearly orbicular or oval, dark purple or brown when mature.

Rocky woods, hill-sides and banks of rivers. *Fl.* May – June. *Fr.* July.

TRIBE IV. *SESELINEÆ. Koch.*

Transverse section of the fruit orbicular, or nearly so. Carpels with five filiform or winged ribs, of which the lateral ones are marginal, and either equal with or a little broader than the others. Intervals with one or more vittæ, very rarely without any. Seed somewhat teretely convex on the back, flattish on the face.—Umbels perfectly compound.

10. THASPIUM. *Nutt. gen.* 1. *p.* 196 ; *DC. prodr.* 4. *p.* 153. THASPIUM.

["From the Isle of *Thaspia*, which gave name to the Thapsia of the ancients."* NUTT.]

Calyx-teeth lanceolate or nearly obsolete. Petals elliptical, attenuated into a long inflexed point. Styles slender, as long as the ovary, somewhat diverging. Fruit not contracted at the sides, elliptical. Carpels convex, with 5 winged mostly equal ribs. Intervals striate, with single vittæ. Commissure with 2 vittæ. Seed somewhat terete.— Perennial herbs. Leaves ternately or biternately divided ; the radical ones sometimes cordate and entire. Umbels terminal and opposite the leaves, without an involucre. Involucels lateral, small. Flowers yellow or purple.

1. THASPIUM ATROPURPUREUM, *Nutt.* (Plate XXXIV.) *Purple Alexanders.*

Radical leaves on long petioles, mostly cordate and undivided, crenately toothed ; cauline ones ternately divided, serrate, terminal one always (and the lateral ones also in the lower leaves) petiolulate ; umbels opposite the leaves, and terminal ; flowers dark purple ; winged ribs of the carpel equal.— *Nutt. gen.* 1. *p.* 196 ; *DC. prodr.* 4. *p.* 154. T. cordatum, *β.* atropurpureum, *Torr. & Gr. fl. N. Am.* 1. *p.* 615. Thapsia trifoliata, *Linn. sp.* 1. *p.* 162. Smyrnium atropurpureum, *Lam. dict.* 3. *p.* 667 ; *Pursh, fl.* 1. *p.* 196. Cnidium atropurpureum, *Spreng. in Schult. syst.* 6. *p.* 418 ; *Torr. fl.* 1. *p.* 307.

Stem 1 – 2 feet high, smooth, terete. Radical leaves sometimes 2 – 3-lobed or ternately divided, one or more of them usually entire, 1 – 2 inches in diameter. Cauline leaves petiolate ; the petioles in the uppermost ones short, but distinct : segments rather obtusely serrate, the terminal ones more or less cordate or rhombic-ovate. Umbels on peduncles 1 – 3 inches long ; the rays, when in flower, less than an inch long, and little more than an inch when in fruit. Calyx-teeth very small. Petals thick and somewhat succulent, very deep purple. Styles slender, diverging. Fruit strongly winged, light brown with dark-colored intervals when mature.

Rocky hill-sides and borders of woods. *Fl.* June. *Fr.* August.

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* The name of the island was *Thapsus* or *Thapsos*, and had already been appropriated for another plant. It is to be regretted that some other name had not been employed for the present genus.

2. THASPIUM AUREUM, *Nutt.* *Golden Thaspium.*

Lower and middle cauline leaves biternately, and the uppermost ternately divided; segments oblong-lanceolate, mostly cuneate at the base, sharply serrate, the serratures cartilaginous on the margin; carpels with the winged ribs nearly equal. — *Nutt. gen.* 1. *p.* 196; *Torr. & Gr. fl. N. Am.* 1. *p.* 616. Smyrnium aureum, *Bigel. fl. Bost. p.* 113. Sison aureus, *Torr. fl.* 1. *p.* 305.

Root rather thick, horizontal, somewhat pungent. Stem 1 – 3 feet high, simple or a little branching towards the summit, nearly smooth at the nodes. Lower leaves on long petioles which are deeply 3-parted, the divisions ternately divided, the middle segment often 3-lobed or deeply 3-parted; uppermost leaves for the most part ternately divided, but sometimes biternate; segments 1 – 2 inches long, acute. Umbels on long peduncles, 10 – 20-rayed; the rays 1 – 1½ inch long. Involucels often very short. Fruit oval, about 2 lines long; the wings conspicuous, sometimes a little unequal.

Wet meadows, and banks of rivers; western part of the State. June.

T. cordatum, *var.* α. (in part), *Fl. N. Am. l. c.*, I now think is a variety of this species, as I have numerous specimens from the Western States, sent by Mr. Sullivant, Dr. Short and Dr. Clapp, that show a gradual transition from one species to the other. I have not found it, however, in this State. From *Zizia aurea* it is scarcely to be distinguished except by the fruit, the characters of which seem to be very constant. It will be seen, by a reference to the Flora of North America, that some changes have been made in the arrangement of the species of this genus and of *Zizia*. With the exception of the fruit, the resemblance between *Z. aurea* and *T. aureum*, and between *Z. cordata* and *T. cordatum* (now T. aureum, *var.* cordatum), is so great that they may easily be confounded. It is possible that these species may not be distinct, and perhaps the two genera (excluding *Z. integerrima*) should be united.

3. THASPIUM BARBINODE, *Nutt.* *Hairy-jointed Thaspium.*

Stem dichotomous above, bearded at the nodes; leaves bi-triternately compound; segments rhombic-ovate, unequally and incisely serrate, entire at the base; umbels in the forks of the stem, and terminal; fruit elliptical or ovoid, the 3 dorsal wings usually alternately narrower. —*Nutt. gen.* 1. *p.* 196; *DC. prodr.* 4. *p.* 154; *Beck, bot. p.* 146; *Darlingt. fl. Cest. p.* 192; *Torr. & Gr. fl. N. Am.* 1. *p.* 616. Ligusticum barbinode, *Michx. fl.* 1 *p.* 167; *Pursh, fl.* 1. *p.* 193. Thapsia trifoliata, *Spreng. in Schult. syst.* 6. *p.* 615; *Torr. fl.* 1. *p.* 317. Smyrnium barbinode, *Muhl. cat. p.* 31.

Stem about 2 feet high, terete, smooth except at the joints. Lower leaves mostly biternate; those at the forks of the stem opposite; uppermost only simply ternate: segments 1 – 2 inches long: petioles pubescent at the base. Umbels on peduncles which are 2 – 3 inches in length: rays about an inch long. Involucels of about 3 narrow leaflets. Calyx-teeth very short, acute. Styles slender, nearly erect, almost the length of the ovary. Fruit varying from roundish-ovoid.

to elliptical; the dorsal ribs conspicuously winged: usually one of the carpels has a single broad and two narrower wings; the other two broad and one narrower.

Borders of woods, and rocky banks of rivers. Valley of the Chemung (*Dr. Knieskern*). Near the Falls of Niagara, on the Canada side (*Dr. Gray*). *Fl.* June. *Fr.* August.

11. ÆTHUSA. *Linn.; Endl. gen.* 4424. FOOL'S PARSLEY.

[Named from the Greek, *aitho*, to burn; on account of its acrid quality.]

Calyx-teeth obsolete. Petals obovate, emarginate, with an inflexed point. Fruit ovoid-globose. Carpels with 5 acutely carinated ribs; the lateral ones marginal, and a little broader. Intervals deeply acute-angled, with single vittæ. Commissure with 2 vittæ. Seed teretely convex on the back, rather flat on the face. Carpophore 2-parted.—Annual, erect, poisonous herbs. Leaves many-cleft. Involucre none, or one-leaved. Involucels 1 – 5-leaved, lateral, spreading or pendulous. Flowers white.

1. ÆTHUSA CYNAPIUM, *Linn.* *Common Fool's Parsley.*

Segments of the leaves ovate-lanceolate, with lanceolate lobes; involucre none; involucels 3-leaved, mostly longer than the partial umbels, pendulous; vittæ of the commissure distinct at the base (*DC.*). — *Linn. sp.* 1. *p.* 256; *Engl. bot.* 1192; *Bigel. fl. Bost. p.* 113; *DC. prodr.* 4. *p.* 141; *Beck, bot. p.* 145; *Torr. & Gr. fl. N. Am.* 1. *p.* 618.

Stem 1 – 2 feet high, hollow, not spotted. Leaves bi-triternately compound; the ultimate lobes or segments linear-lanceolate. Umbels terminal, and opposite the leaves: rays very unequal, the longest seldom an inch in length. Leaflets of the involucels linear, all on one side. Fruit nearly as broad as long, about 2 lines in diameter; the ribs very prominent and keeled. Vittæ very narrow.

Waste places and road-sides; naturalized in some places. A native of Europe. *Fl.* July – August. *Fr.* September. The whole plant emits a nauseous odor. It is considered poisonous, but in a less degree than *Conium maculatum*. From the latter it is easily distinguished by its spotless stem, long pendulous one-sided involucels, and straight ridges of the fruit.

12. CONIOSELINUM. *Fisch. in Hoffm. Umb. ed.* 2. *p.* 185 *tit. f.* 5, ex *DC. prodr.* 4. *p.* 163; *Endl. gen.* 4448. CONIOSELINUM.

[Name compounded of *Conium* and *Selinum*.]

Calyx-teeth obsolete. Petals obcordate or obovate, with an inflexed point. Styles slender, at length reflexed. Fruit convex or compressed on the back. Carpels with 5 winged ribs; the lateral ones twice as broad as the others, and marginal. Lateral intervals with 3 vittæ; dorsal ones often with 2 vittæ. Commissure with 4 – 8 unequal vittæ. Carpophore 2-parted. Seed flat on the face. — Biennial (and perennial?) smooth herbs, with branching and fistulous stems. Leaves with very large and inflated petioles, ternately divided; the divisions bipinnately parted, with oblong-linear lobes. Involucre none, or few-leaved. Involucels of 5 – 6 linear-subulate leaves. Flowers white.

1. CONIOSELINUM CANADENSE, *T. & G.* (Pl. XXXV.) *Canadian Conioselinum.*

Fruit oval, nearly twice the length of the pedicels; dorsal ridges narrowly winged.—*Torr. & Gr. fl. N. Am.* 1. *p.* 619. Selinum Canadense, *Michx. fl.* 1. *p.* 165; *Pursh, fl.* 1. *p.* 192. Cnidium Canadense, *Spreng. in Schult. syst.* 6. *p.* 415 (excl. syn.); *DC. prodr.* 4. *p.* 153.

Root perennial. Stem 3 – 5 feet high, terete, branching above, finely striate. Leaves with inflated sheathing petioles, 3-parted, the divisions pinnately compound; segments pinnatifid, the lobes linear-oblong, acute. Umbel of 10 – 16 slender rays, which are about two inches long. Involucre none, or merely 1 – 3 small subulate leaflets. Involucels 5 – 6-leaved, nearly as long as the umbellets. Styles slender, diverging. Calyx-teeth nearly obsolete. Petals spreading, emarginate; the point short and inflexed. Fruit about 3 lines long, compressed on the back: dorsal ribs decidedly, though rather narrowly winged; lateral ribs dilated into a conspicuous wing. Vittæ of the lateral intervals sometimes solitary, but usually 2 or 3; those of the dorsal intervals often solitary, frequently 2 or even 3, sometimes running into each other; in the commissure at least 4, and sometimes several other shorter ones, besides occasionally one in the margin of the wing.

Swamps, usually in shady places. Oriskany, Oneida county; and on the banks of Chenango River (*Dr. Knieskern*). *Fl.* August – September. *Fr.* October.

Since the description of this plant in the Flora of North America was published, I have obtained perfectly ripe fruit, and its resemblance to that of *C. Fisheri* is found to be very close indeed; the chief difference being in the breadth of the dorsal ridges.

TRIBE V. *ANGELICEÆ. Koch.*

Fruit dorsally compressed, with a double winged margin: carpels with three dorsal ribs, filiform or winged; the lateral ones dilated, and forming winged margins. Seeds convex on the back, flattish on the face.

13. ARCHANGELICA. *Hoff.; DC. prodr.* 4. *p.* 169; *Endl. gen.* 4457. ARCHANGEL.

[The name alludes to its supposed *archangelic* properties.]

Calyx-teeth short. Petals ovate, entire, acuminate, with the point incurved. Fruit somewhat dorsally compressed. Carpels with 3 rather thick and prominent dorsal ribs: lateral ribs dilated into marginal wings. Seed not adhering to the pericarp. Vittæ very numerous, entirely surrounding the seed. — Perennial herbs. Leaves usually with large inflated petioles, 3-parted, with the divisions pinnately or bipinnately divided; the segments ovate, toothed or serrate. Involucre almost none. Involucels many-leaved. Flowers white or greenish.

1. ARCHANGELICA ATROPURPUREA, *Hoff.* *Common Angelica.*

Stem deeply striate (dark purple); divisions of the leaves bipinnately divided; segments of the secondary divisions 5 – 7, the three terminal ones confluent and decurrent at the base, somewhat acuminate, unequally serrate, membranaceous; petioles very large and inflated; peduncles nearly smooth; fruit smooth.— *Hoff. Umb.* 1. *p.* 169; *Torr. & Gr. fl. N. Am.* 1. *p.* 621. Angelica atropurpurea, *Linn. sp.* 1. *p.* 251; *Pursh, fl.* 1. *p.* 193; *Torr. fl.* 1. *p.* 316; *DC. prodr.* 1. *p.* 168; *Hook. fl. Bor.-Am.* 1. *p.* 267; *Beck, bot. p.* 147; *Darlingt. fl. Cest. p.* 194. A. triquinata, *Michx. fl.* 1. *p.* 167; *Bigel. fl. Bost. p.* 110. Imperatoria lucida, *Nutt. gen.* 1. *p.* 181.

Stem 3 – 6 feet high, very stout, hollow, glaucous, generally of a dark purple color. Leaflets 2 – 5 inches long and 1 – 2 inches wide; the terminal one united with the upper pair, or deeply 3-lobed: serratures discolored at the tip: petioles 1 – 2 inches in diameter. Umbels 6 – 8 inches in diameter; the rays at length somewhat converging, more or less pubescent. Involucels of 8 – 12 small subulate leaflets. Petals greenish-white. Fruit about one-third of an inch long and nearly 3 lines wide, often tricarpellary. Carpels with prominent dorsal ribs; the lateral ribs expanded into narrow wings. Seeds free from the pericarp. Vittæ not lodged in the substance of the pericarp, but in the coats of the seed, very numerous, and filled with a pungent and rather disagreeable aromatic oil.

Moist low grounds; rather common. *Fl.* May – June. *Fr.* August. A popular aromatic, tonic and carminative. See *Wood & Bache's U. S. Dispens. p.* 86.

2. ARCHANGELICA HIRSUTA, *Torr. & Gr.* (Pl. xxxvi.) *Downy Angelica.*

Stem striate, the summit with the peduncle and rays of the umbel tomentose-pubescent; leaves bipinnately divided, the divisions usually quinate; segments ovate-oblong, equally serrate, rather thick; the upper pair connate, but not decurrent at the base; umbels spreading; fruit pubescent. — *Torr. & Gr. fl. N. Am.* 1. *p.* 622. Angelica hirsuta, *Muhl. cat. p.* 30. Angelica triquinata, *Nutt. gen.* 1. *p.* 186; *Ell. sk.* 1. *p.* 252; *Torr. fl.* 1. *p.* 315; *DC. prodr.* 4. *p.* 168; *Hook. fl. Bor.-Am.* 1. *p.* 267; *Beck, bot. p.* 147; *Darlingt fl. Cest. p.* 193. Pastinaca triquinata, *Spreng. Umb. p.* 68. *t.* 6. *f.* 2. Ferula villosa, *Walt. fl. Car. p.* 115; *Pursh, fl.* 1. *p.* 192 (excl. syn.).

Stem 3 – 5 feet high, straight and erect, much more slender than in the preceding species, simple. Leaves distant; lower ones on long slender petioles, the secondary divisions with 5 – 7 segments; upper leaves on shorter, somewhat sheathing, dilated petioles: segments 1 – 2 inches long, mostly acute, the lower exterior one often lobed or auriculate at the base. Umbels on long peduncles, the upper part of which, and the rays, are clothed with a dense white pubescence. Umbels usually 3; the numerous spreading rays about 2 inches long. Involucels of 6 – 10 subulate leaflets, as long as the umbellets. Petals obovate, with a small inflected point. Fruit about $2\frac{1}{2}$ lines long and of about the same breadth, emarginate at each end, greenish-white when mature: dorsal ribs very prominent and acute. Vittæ usually 20; 8 of which belong to the commissure.

Dry woods, thickets and hill-sides. *Fl.* July – August. *Fr.* September – October. In this species the seed does not so readily separate from the pericarp, as in the preceding.

TRIBE VI. *PEUCEDANEÆ. DC.*

Fruit more or less compressed dorsally, surrounded with a single dilated entire smooth margin, which is flattened or slightly convex, but not thickened at the edge. Capsule with five filiform or rarely winged ribs, of which the lateral ones are contiguous to the dilated margin or united with it. Seed flattened, or convex on the back.

14. ARCHEMORA. *DC. mem. Umb. p.* 52, *and prodr.* 4. *p.* 188. *ARCHEMORA.*

[A fanciful name, given by De Candolle, in allusion to *Archemorus*, who is said to have died from eating parsley, or some other umbelliferous plant.]

Margin of the calyx 5-toothed. Petals obcordate, with an inflexed point. Fruit lenticularly compressed, oval or obovate. Carpels with 5 filiform, obtuse, approximated, equidistant ribs; the lateral ones dilated into a flattish margin, nearly as broad as the disk. Intervals with single large vittæ. Commissure with 4 – 6 vittæ. Carpophore 2-parted. Seed flat. — Perennial smooth herbs, growing in swamps. Leaves pinnately or ternately divided; the segments entire or remotely toothed. Involucre none or few-leaved. Involucels of numerous leaflets. Flowers white.

1. ARCHEMORA RIGIDA, *DC.* (Plate XXXVI.) *Rigid-leaved Archemora.*

Leaves pinnately divided.— *DC.; Torr. & Gr. fl. N. Am.* 1. *p.* 631.

var. 1. Segments of the leaves ovate, oblong or lanceolate, remotely toothed or denticulate, often entire. *Torr. & Gr. l. c.* A. rigida, tricuspidata *and* denticulata, *DC. l. c.* A. rigida, *Beck, bot. p.* 148; *Darlingt. fl. Cest. p.* 195. Sium rigidius, *Linn. sp.* 1. *p.* 251. S. rigidius, tricuspidatum *and* denticulatum, *Ell. sk.* 1. *p.* 354. Sison marginatum, *Michx. fl.* 1. *p.* 168; *Pursh, fl.* 1. *p.* 194. Œnanthe rigida, *Nutt. gen.* 1. *p.* 189. Pastinaca rigida, *Spreng. in Schult. syst.* 6. *p.* 586; *Torr. fl.* 1. *p.* 314.

var. 2. Segments of the leaves linear, elongated, mostly entire. *Torr. & Gr. l. c.* A. ambigua, *DC. l. c.; Beck, l. c.* Sium longifolium, *Pursh, fl.* 1. *p.* 194. Œnanthe ambigua, *Nutt. l. c.* Pastinaca ambigua, *Spreng. l. c.; Torr. l. c.*

Root fasciculate, fleshy. Stem 2 – 5 feet high, erect, slender but somewhat rigid, terete, striate. Leaves light green, with 2 - 5 pairs of leaflets, of a firm texture: in the first variety, from half an inch to more than an inch wide, the teeth few and remote, or often wholly wanting; in the second form, only 2 – 4 lines wide, and seldom toothed. Umbels usually 3 on each plant; the rays numerous and slender. Fruit about 3 lines long, broadly elliptical, greenish-yellow, the ribs slightly elevated: intervals dark purple: commissure white.

Swamps; western part of the State; rare. *Fl.* August. *Fr.* September – October. The two varieties often grow together, and pass into one another. The plant is generally supposed to be highly poisonous.

15. PASTINACA. *Tourn.; Endl. gen.* 4473. *PARSNEP.*

[Name derived from the Latin, *pastus*, food.]

Calyx-teeth obsolete or minute. Petals somewhat orbicular, entire, involute; the point broad and retuse. Fruit much compressed, with a dilated flat margin. Carpels with 5 very slender ribs; 3 of them dorsal and equidistant; the lateral ones remote, and contiguous to the margin. Intervals with single vittæ. Commissure with 2 or more vittæ. Carpophore 2-parted. Seed flat.—Perennial or biennial herbs, with fusiform often fleshy roots. Leaves pinnately divided; the segments toothed, incised or lobed. Involucre and involucels few-leaved or none. Flowers yellow.

1. PASTINACA SATIVA, *Linn.* *Common or Wild Parsnep.*

Stem sulcate, smooth; leaves minutely pubescent; segments ovate-oblong, obtuse, unequally toothed and serrate, cut at the base, the terminal one 3-lobed; fruit oval, the commissure with 2 vittæ.— *Linn. sp.* 1. *p.* 262; *Engl. bot. t.* 556; *Pursh, fl.* 1. *p.* 196; *Torr. fl.* 1. *p.* 314; *Bigel. fl. Bost. p.* 113; *DC. prodr.* 4. *p.* 188; *Darlingt. fl. Cest. p.* 196; *Torr. & Gr. fl. N. Am.*1. *p.* 632.

Root biennial, fleshy. Stem 3 – 6 feet high, smooth, strongly sulcate. Leaves somewhat shining; the segments sessile, 3 – 8 pairs. Umbels large and flat. Fruit about one-third of an inch long, broadly oval, the border a little thickened: ribs very slender and slightly prominent.

Fields and waste grounds; very common. July – October. Introduced, and now completely naturalized in many places. In the wild state, the root is hard and unfit for food.

16. HERACLEUM. *Linn.; Endl. gen.* 4477. *COW PARSNEP.*

[Named after *Hercules*, who is said to have brought this plant into use.]

Calyx-teeth distinct, or sometimes obsolete. Petals obcordate, with an inflexed point; in the exterior flowers often radiate, and apparently 2-cleft. Fruit much compressed on the back, with a broad flat margin: ribs slender; 3 of them dorsal and equidistant; the 2 lateral ones remote, and contiguous to the dilated margin. Vittæ mostly clavate, shorter than the fruit; one in each interval, and usually 2 in the commissure. Seed flat.—Stout herbaceous plants, with pinnately or ternately divided or lobed leaves: petiole large and sheathing. Umbels with numerous rays. Involucre caducous, mostly few-leaved. Involucels many-leaved.

1. HERACLEUM LANATUM, *Michx.* *American Cow Parsnep.*

Stem sulcate, pubescent; leaves ternately divided, woolly-pubescent underneath; the segments petiolulate, roundish-cordate, somewhat palmately lobed; fruit oval or obovate.—*Michx. fl.* 1. *p.* 166; *Pursh, fl.* 1. *p.* 181; *Bigel. fl. Bost p.* 110; *Torr. fl.* 1. *p.* 313; *DC. prodr.* 4. *p.* 192; *Hook. fl. Bor.-Am.* 1. *p.* 270; *Beck, bot. p.* 149; *Darlingt. fl. Cest. p.* 196; *Torr. & Gr. fl. N. Am.* 1. *p.* 632.

Stem 4 – 8 feet high, and 1 – 2 inches in diameter at the base. Leaves with 3 primary divisions, each on a footstalk 2 – 6 inches in length; the divisions 3 – 5-lobed and incisely serrate, often 6 – 8 inches in diameter: common petiole much inflated and membranaceous. Umbels very large, spreading. Involucre of 6 – 10 oblong-lanceolate caducous leaflets. Leaflets of the involucels tapering to a long point. Flowers white: petals of the exterior ones appearing deeply and often very unequally 2-lobed, with a short inflexed point between the lobes. Fruit nearly half an inch long, emarginate. Vittæ clavate, extending about half way down the carpels.

Wet meadows and river banks. *Fl.* May – June. *Fr.* July – August. A strong-smelling plant, called in some places *Master-wort*. The root is stimulant and carminative. See *Wood & Bache's U. S. Disp. p.* 86.

TRIBE VII. *DAUCINEÆ. DC.*

Fruit lenticularly compressed on the back, or somewhat terete. Carpels with five filiform bristly primary ribs, of which the lateral ones are placed on the flat commissure; and four more prominent prickly secondary ones, the prickles distinct or united into a wing. Seed flattened or convex on the back, flattish on the face. — Umbels compound.

17. DAUCUS. *Tourn.; Linn.; Endl. gen.* 4497. CARROT.

[*Daukos* is the ancient Greek name of the Carrot.]

Margin of the calyx 5-toothed. Petals obovate, emarginate, with an inflexed point; the exterior ones often larger than the others, and deeply 2-cleft. Fruit somewhat dorsally compressed, ovate or oblong. Carpels with 5 primary filiform bristly ribs, of which 3 are on the back and 2 on the flat commissure: secondary ribs 4, equal, more prominent, winged, divided into a single row of prickles. Intervals with single vittæ under the secondary ridges.— Mostly perennial herbs. Leaves 2 – 3-pinnately divided. Involucre of several trifid or pinnatifid leaflets. Flowers white or yellow; the central one often fleshy and sterile.

1. DAUCUS CAROTA, *Linn.* *Common*, or *Wild Carrot.*

Stem hispid; leaves 2 – 3-pinnatifid, segments pinnatifid, ultimate lobes lanceolate and cuspidate; leaflets of the involucre pinnatifid, nearly the length of the umbel; prickles about equal to the diameter of the oblong-ovoid fruit (*DC.*).—*Linn. sp.* 1. *p.* 242; *Engl bot. t.* 1174; *Pursh, fl.* 1. *p.* 191; *Torr. fl.* 1. *p.* 308; *Bigel. fl. Bost. p.* 109; *DC. prodr.* 4. *p.* 211; *Beck, bot. p.* 149; *Darlingt. fl. Cest. p.* 197; *Torr. & Gr. fl. N. Am.* 1. *p.* 635.

Root fusiform, yellowish, biennial. Stem about 2 feet high, branching. Leaves hispidly pubescent. Umbels with very numerous rays, which are turned inwards after flowering. Flowers white, or sometimes cream-colored; a solitary central one of each umbellet sometimes abortive and colored. Primary ribs of the carpels very slender, ciliate; secondary ones much stronger, cut into slender prickles.

Fields, road-sides, etc.; very common. Of European origin, and now generally naturalized in the United States. In a cultivated state, the Carrot is well known as a culinary vegetable. The root is frequently used as an antiseptic poultice, and the seeds as a carminative; but the plant is probably of little use in calculous affections.

Series 2. CAMPYLOSPERMÆ, *DC.* *Seed with the margins involute, or deeply furrowed on the face.*

TRIBE VIII. *SCANDICINEÆ. Koch; DC.*

Fruit compressed or contracted laterally, equally rostrate. Carpels with five equal filiform or winged ribs, of which the lateral ones are marginal; all of them sometimes obliterated at the base, and only conspicuous at the apex. Seed teretely convex, either furrowed on the face or involute.— Umbels compound.

18. OSMORHIZA. *Raf. in journ. phys.* 1821; *Endl. gen.* 4515. *SWEET CICELY.*

[From the Greek, *osme*, odor, and *rhiza*, root: the roots have a sweet smell.]

Margin of the calyx obsolete. Petals oblong, nearly entire; the point cuspidate and incurved. Fruit linear-elongated, acutely angled, lobed, attenuate at the base, crowned with the stylopodium and straight styles. Ribs of the carpels acute, bristly upward. Intervals flat, without vittæ. Commissure narrow, with a deep channel. Seed somewhat terete. — Perennial herbs, with fleshy aromatic roots. Leaves biternately divided; the segments ovate or oblong, incisely toothed. Umbels opposite the leaves. Involucre of 2 – 4 linear-lanceolate leaflets. Involucel about 5-leaved. Flowers white.

1. OSMORHIZA LONGISTYLIS, *DC.* (Plate XXXVIII.) *True Sweet Cicely.*

Styles filiform, nearly as long as the ovary; fruit clavate.— *DC. prodr.* 4. *p.* 232; *Hook. fl. Bor.-Am.* 1. *p.* 271. *t.* 96; *Beck, bot. p.* 150; *Darlingt. fl. Cest. p.* 199; *Torr. & Gr. fl. N. Am.* 1. *p.* 638. Uraspermum Claytoni, *Nutt. gen.* 1. *p.* 193 (excl. syn.); *Bigel. fl. Bost. p.* 112. Myrrhis Claytoni, *Spreng. in Schult. syst.* 6. *p.* 508. M. longistylis, *Torr. fl.* 1. *p.* 310.

Root thick, somewhat fleshy and branching, or fusiform and fasciculate, of a sweet spicy flavor resembling *anise*. Stem 2 – 3 feet high, purplish, pubescent when young (as well as the petioles and peduncles), at length nearly smooth. Radical and lower cauline leaves on long petioles, a little pubescent on both sides, shining underneath, somewhat lobed at the base. Umbels with about 4 rays; the rays 1 – 2 inches long. Involucre of 1 – 3 narrowly lanceolate and ciliate leaflets. Umbellets 3 – 6-flowered. Involucels of about 5 lanceolate and ciliate leaflets. Flowers twice as large as in the following species. Fruit dark green or blackish, much attenuated below, rather obtuse at the summit.

Rich moist soils, amongst rocks. *Fl.* May. *Fr.* August. Children are very fond of gathering the roots of this plant, on account of its sweet aniseed flavor; but they sometimes mistake for it the *Cicuta*, or other poisonous species of *Umbelliferæ*.

2. OSMORHIZA BREVISTYLIS, *DC.* *Spurious Sweet Cicely.*

Styles conical, their length scarcely equal to the breadth of the ovary; fruit somewhat tapering at the summit.— *DC. prodr.* 4. *p.* 232; *Hook. fl. Bor.-Am.* 1. *p.* 271. *t.* 97; *Beck, bot. p.* 150; *Darlingt. fl. Cest. p.* 200; *Torr. & Gr. fl. N. Am.* 1. *p.* 639. Myrrhis Claytoni, *Michx. fl.* 1. *p.* 170; *Torr. fl.* 1. *p.* 308, excluding most of the synonyms. Chærophyllum Claytoni, *Pers. syn.* 1. *p.* 320. Uraspermum hirsutum, *Bigel. fl. Bost. p.* 112.

Root sweetish, but rather nauseous, and without the anise-flavor of the preceding species. Stem pale green, often hoary-pubescent when young, but finally (especially in shady places) almost smooth. Leaves slightly hairy on both sides; secondary divisions pinnatifid; segments oblong, incisely and sharply serrate. Umbel with longer rays than in the preceding species. Involucre and involucels at length deciduous. Fruit shining, nearly black.

Moist rocky woods. *Fl.* May. *Fr.* August. This species is much more common than the preceding in the southern part of the State: both are frequent in the northern and western counties.

TRIBE IX. *SMYRNIEÆ. Koch; DC.*

Fruit turgid, mostly laterally compressed or contracted. Carpels with five ribs; the lateral ones marginal or placed opposite the margin, sometimes nearly obliterated. Seed involute, or sulcate on the face.— Umbels compound.

19. CONIUM. *Linn.; Endl. gen.* 4532. *POISON HEMLOCK.*

["The *koneion* of Theophrastus; from *konos*, a cone or top, whose whirling motion resembles the giddiness produced on the human constitution by the poisonous juice of this plant." HOOKER.]

Margin of the calyx obsolete. Petals obcordate, with a short inflexed point. Fruit ovoid, compressed at the sides. Carpels with 5 prominent, equal, undulate or crenate ribs; the lateral ones marginal. Intervals without vittæ. Seed with a deep narrow groove on the face.— Biennial, poisonous herbs. Root fusiform. Stem terete, branched. Leaves decompound. Involucre and involucels 3 – 5-leaved, the latter one-sided. Flowers white.

1. CONIUM MACULATUM, *Linn.* *Common Poison Hemlock.*

Stem smooth, spotted; segments of the leaves lanceolate, pinnatifid, the lobes acute; leaflets of the involucel lanceolate, shorter than the umbellets.— *Linn. sp.* 1. *p.* 243; *Engl. bot. t.* 1191; *Pursh, fl.* 1. *p.* 195; *Bigel. med. bot.* 1. *p.* 113. *t.* 11, *and fl. Bost. p.* 195; *Torr. fl.* 1. *p.* 312; *Hook. fl. Bor.-Am.* 1. *p.* 272; *Beck, bot. p.* 150; *Darlingt. fl. Cest. p.* 201; *Torr. & Gr. fl. N. Am.* 1. *p.* 640.

Root white and fleshy, often forked. Stem 2 – 4 feet high, much branched, striate and spotted with purple. Leaves petiolate, bright green, ternately much divided; ultimate lobes about a line wide. Umbels terminal: rays numerous, about an inch long. Involucre and

involucels about 3-leaved. Fruit crowned with the conspicuous stylopodium and short recurved styles; the ridges distinctly waved.

Road-sides, waste grounds, etc.; naturalized in many places. A native of Europe. *Fl.* June – September. *Fr.* August – October. The leaves exhale a strong disagreeable odor when bruised. This plant is a powerful narcotic poison. It has long been used in medical practice. The active principle, called *conicine*, is a colorless oily liquid, lighter than water, of a strong and penetrating odor, and causing death almost as rapidly as prussic acid.

Series 3. CŒLOSPERMÆ, *DC.* *Seeds with the base and apex curved inwards, or saccately concave.*

TRIBE X. *CORIANDREÆ. Koch; DC.*

Fruit globose, or the carpels globose and didymous: primary ribs of each carpel 5, *depressed and flexuous, or nearly obsolete; the secondary ones* 4, *more prominent: all wingless. — Umbels compound.*

20. ERIGENIA. *Nutt. gen.* 1. *p.* 187; *Endl. gen.* 4359. *ERIGENIA.*

[*Erigenia* is a name of Aurora, the harbinger of day or of the spring. NUTTALL.]

Margin of the calyx obsolete. Petals obovate-spatulate, flat, entire. Stylopodium depressed. Fruit contracted at the commissure, didymous. Carpels ovoid-reniform: ribs filiform; the 3 dorsal ones slightly prominent; the lateral ones near the commissure. Vittæ very slender, 3 – 4 in each interval and 6 – 8 in the commissure. Carpophore adherent. Seed with a broad deep cavity on the face, gibbously convex on the back. — A small smooth vernal perennial, with a globose tuberous root and a short caudex. Leaves 1 – 2, nearly radical, bi-triternately divided; the segments pinnately 3 – 5-parted. Peduncle elongated. Umbel of 3 – 4 rays, compound, subtended by an involucral bipinnatifid leaf; or the peduncle may be regarded as a branch, bearing a single sessile leaf, and a compound sessile umbel at the summit. Involucel of 3 – 8 linear-oblong entire leaflets. Umbellets 3 – 5-flowered. Flowers white.

1. ERIGENIA BULBOSA, *Nutt.* (Plate XXXIX.) *Bulbous-rooted Erigenia.*

Nutt. l. c.; DC. l c.; Torr. & Gr. fl. N. Am. 1. *p.* 645. Sison bulbosum, *Michx. fl.* 1. *p.* 169. Hydrocotyle composita, *Pursh, fl.* 1. *p.* 190; *Torr. fl.* 1. *p.* 304. H. ambigua, *Pursh, l. c.* 2. *p.* 732. H. bipinnata, *Muhl. cat. p.* 29.

Root a small round fleshy tuber, about half an inch in diameter, and buried deep in the ground. Caudex 1 – 2 inches high, usually furnished with but a single leaf. Petiole twice 3-parted, sheathing at the base: secondary divisions bipinnately dissected; the lobes linear-oblong, mostly obtuse. Peduncles 1 – 2, or rarely 3, from the sheathing base of the petiole,

2 – 6 inches long. Involucral leaf resembling the radical one, but sessile and much smaller. Umbellets usually 3, at length shorter than the leaflets of the involucel. Petals expanding, rather obtuse, flat at the tip. Anthers dark purple. Styles subulate, longer than the ovary, recurved. Fruit conspicuously didymous, the commissure narrow. Carpels gibbous, one of them often abortive, deeply emarginate at each end; the faces separating between the apex and the base, so that there is often a perforation between the carpels. Vittæ very small, indistinct, except at maturity.

Shady rich soils, Buffalo (*Dr. Kinnicutt*). March – April. This genus does not well accord with any of the tribes of UMBELLIFERÆ, as they are characterized by the latest writers. Mr. Sullivant, who first noticed the vittæ, truly remarks that the plant exhibits an union of the campylospermous and cœlospermous structures. It is left for the present in the tribe in which it was placed in the Flora of North America.

ORDER XLIX. ARALIACEÆ. *Juss.* THE ARALIA TRIBE.

Calyx adherent to the ovary; the limb usually very small, entire or toothed. Petals 5 – 10, valvate in æstivation, rarely wanting. Stamens as many as the petals. Ovary crowned with a disk, 2 – 15-celled, with a solitary suspended ovule in each cell. Fruit drupaceous or baccate, sometimes nearly dry, the carpels not separating: endocarp coriaceous or thin. Seed solitary in each cell. Embryo short, at the base of copious fleshy albumen.— Shrubs, trees or perennial herbs, with compound or simple leaves which are destitute of stipules; the petioles dilated and thickened at the base. Flowers mostly umbellate, often polygamous; the umbels commonly panicled or racemed.

1. ARALIA. *Linn.; Endl. gen.* 4558. *ARALIA.*

[A name of unknown origin.]

Flowers mostly perfect. Limb of the calyx short, 5-toothed or entire. Petals 5, spreading. Stamens 5, alternate with the petals: filaments short. Styles 5, often united below, at length divaricate. Drupe baccate, 5-lobed, 5-celled; the endocarp chartaceous.— Shrubs, trees or perennial herbs, with mostly compound leaves. Umbels often panicled.

1. ARALIA RACEMOSA, *Linn.* *Spikenard.*

Stem herbaceous, divaricately branched, smooth; leaves ternately and quinately decompound; leaflets cordate-ovate, acuminate, doubly serrate; umbels disposed in large doubly

compound racemose panicles. — *Linn. sp.* 1 *p.* 273; *Michx. fl.* 1. *p.* 185; "*Schk. handb. t.* 86;" *Pursh, fl.* 1. *p.* 209; *Torr. fl.* 1. *p.* 327; *Bigel. fl. Bost. p.* 122; *DC. prodr.* 4. *p.* 257; *Hook. fl. Bor.-Am.* 1. *p.* 174; *Beck, bot. p.* 151; *Darlingt. fl. Cest. p.* 209; *Torr. & Gr. fl. N. Am.* 1. *p.* 646.

Root large and thick, strongly aromatic. Stem 3 – 5 feet high, with spreading branches. Leaves very large; leaflets 2 – 6 inches long and 2 – 4 inches wide, on short stalks, nearly smooth, somewhat shining underneath. Panicle 4 – 8 inches long. Flowers small, greenish-white. Calyx 5-toothed. Petals ovate-lanceolate. Styles short, united below, at length distinct and spreading above. Fruit small, dark purple.

In rich woodlands and banks of ravines; not uncommon in the interior of the State, but rare near the seacoast. It is often seen in gardens. *Fl.* July. *Fr.* September. The root and berries are in great repute as aromatic tonics. They are used in the form of tincture; but, as Dr. Darlington correctly observes, the *habit* of taking such medicines is perilous to the patient. See *Wood & Bache's U. S. Dispens. p.* 106.

2. ARALIA NUDICAULIS, *Linn.* (Plate XL.) *Wild Sarsaparilla.*

Stem very short or none; leaf mostly solitary, radical, the petiole elongated, 3-cleft, each division usually pinnately 5-foliolate; leaflets ovate or oblong-oval, acuminate, sharply and doubly serrate; scape shorter than the leaf; umbels 3. — *Linn. sp.* 1. *p.* 274; *Michx. fl.* 1. *p.* 185; *Torr. fl.* 1. *p.* 327; *Raf. med. bot.* 1. *t.* 8; *Bigel. fl. Bost. p.* 122; *Beck, bot. p.* 151; *Darlingt. fl. Cest. p.* 209; *Torr. & Gr. fl. N. Am.* 1. *p.* 646.

Root (or rhizoma) long, thick and irregular, yellowish-brown, prostrate, somewhat aromatic, throwing up from its extremity a solitary leaf and scape, which are clothed at the base with several brownish membranaceous scales. Petiole 6 – 12 inches long, 3-forked above; the divisions commonly bearing 2 pairs of leaflets with an odd one, but sometimes they are bi-ternately divided, each subdivision 3-foliolate: leaflets 2 – 4 inches or more in length, sessile or on short stalks, smooth. Umbels globose: pedicels about half an inch long. Involucre none. Calyx-teeth minute. Petals oblong, greenish-white, at length reflexed. Stamens erect, longer than the ovary. Styles distinct, slender, shorter than the stamens. Fruit very dark-purple when mature, juicy: endocarp strongly 5-angled.

Rocky woods, in rich soils; common. *Fl.* May. *Fr.* July. The root is officinal, and is often sold and used as the genuine Sarsaparilla. Both medicines are harmless, and probably nearly inert. See *Wood & Bache, l. c.*

3. ARALIA HISPIDA, *Michx.* *Wild Elder.*

Stem a little shrubby at the base, and very hispid with rigid bristles; leaves bipinnately compound, the petiole often hispid; leaflets about 3 pairs with a terminal one, oblong-ovate, acute, incisely serrate, smooth; umbels several, terminal, somewhat corymbose; involucre of several small setaceous leaflets. — *Michx. fl.* 1. *p.* 185; *Vent. hort. Cels. t.* 41; *Sims, bot.*

mag. t. 1085; *Lodd. bot. cab. t.* 1306; *Torr. fl.* 1. *p.* 328; *DC. prodr.* 4. *p.* 258; *Hook. fl. Bor.-Am.* 1. *p.* 274; *Beck, bot. p.* 151; *Torr. & Gr. fl. N. Am.* 1. *p.* 647.

Stem 1 – 2 feet high, the base rather stout and woody; the bristles spreading. Leaflets about an inch long, sessile or nearly so, acute at the base, smooth. Umbels pedunculate and often fastigiate; the rays very slender, nearly an inch long, spreading. Calyx-tube turbinate, obtusely 5-angled: teeth small, acute. Petals white, ovate. Stamens exserted. Styles united below, spreading above. Fruit blackish when mature, with five projecting angles: endocarp thick and somewhat crustaceous.

Rocky banks of rivers, and in dry rather poor soils. June – July.

2. PANAX. *Linn.; Lam. ill. t.* 860; *Endl. gen.* 4451. GINSENG.

[From the Greek, *pan*, all, and *akos*, a remedy; a universal remedy or panacea, it being considered by the Tartars and Chinese a medicine for all diseases.]

Flowers polygamous. Limb of the calyx very short, obscurely 5-toothed. Petals 5, spreading. Stamens 5. Fruit fleshy, drupaceous, compressed, orbicular or didymous, 2 – 3-celled; the endocarp rather thin and somewhat coriaceous. — Perennial herbs, shrubs or trees, somewhat diverse in habit. Petioles sheathing at the base.

§. EUPANAX, Torr. & Gr. *Herbaceous and unarmed: root tuberous: leaves ternately verticillate at the summit of the low simple stem, palmately compound: umbel solitary, simple, on a long peduncle.*

1. PANAX QUINQUEFOLIUM, *Linn.* *Common Ginseng.*

Root fusiform, often branched; leaflets mostly 5, on distinct footstalks, obovate-oblong, acuminate, the midrib and nerves mostly smooth; the lateral ones smaller; peduncle about the length of the petioles; styles and cells of the ovary 2 (one of each often abortive). — *Linn. sp.* 2. *p.* 1058; *Michx. fl.* 1. *p.* 256; *Pursh, fl.* 1. *p.* 191; *Bot. mag. t.* 1333; *Bigel. med. bot.* 3. *p.* 82. *t.* 29, *and fl. Bost. p.* 375; *Torr. fl.* 1. *p.* 292; *Hook. fl. Bor.-Am.* 1. *p.* 273; *Beck, bot. p.* 152; *Darlingt. fl. Cest. p.* 181; *Torr. & Gr. fl. N. Am.* 1. *p.* 648.

Roots fleshy, transversely wrinkled, 3 – 6 inches long, whitish, slightly aromatic and sweetish. Stem about a foot high, divided at the summit into 3 equal spreading petioles which are 3 – 4 inches in length. Leaflets rarely more than 5, very thin and membranaceous, the terminal and two lateral ones 3 – 5 inches long; the others smaller, doubly and unequally serrate: petioles 2 – 3 inches long. Peduncle nearly as long as the petioles. Umbel 8 – 16-flowered; the central flowers often abortive. Involucres consisting of several lanceolate-acute leaflets. Calyx-teeth triangular, acute. Petals ovate-oblong, yellowish-green. Styles at first erect, at length spreading. Fruit reniform, somewhat compressed; one of the carpels often abortive, and then gibbous, bright crimson when ripe. Sometimes the fruit is tricarpellary, with 3 styles.

Shady woods, in rich soil. *Fl.* July. *Fr.* September.

The root of this plant is in high estimation among the Chinese as a medicinal article, being an ingredient in nearly all their prescriptions. It was formerly exported in large quantities to Canton, but comparatively little has been sent for the last twenty-five years. Its real medicinal virtues seem to be very feeble. See *Bigelow's med. bot. l. c., and Wood & Bache's U. S. Dispens. p.* 494.

2. PANAX TRIFOLIUM, *Linn.* *Dwarf Ginseng.*

Root globose ; leaflets 3 – 5, lanceolate-oblong or obovate-elliptical, sessile on the common petiole ; peduncle much longer than the petioles ; styles and cells of the ovary mostly 3. — *Linn. sp.* 2. *p.* 1058 ; *Michx. fl.* 1. *p.* 256 ; *Bot. mag. t.* 1334 ; *Pursh, fl.* 1. *p.* 191 ; *Torr. fl.* 1. *p.* 291 ; *DC. prodr.* 4. *p.* 252 ; *Hook. fl. Bor.-Am.* 1. *p.* 273 ; *Beck, bot. p.* 152 ; *Darlingt. fl. Cest. p.* 182 ; *Torr. & Gr. fl. N. Am.* 1. *p.* 648.

Root a round tuber, about half an inch in diameter, buried deep in the ground, pungent to the taste. Stem 4 – 8 inches high. Leaflets mostly 3, but sometimes 5, from half an inch to an inch or more in length, acutely and unequally serrate. Peduncle mostly rather longer than the leaves. Flowers polygamo-diœcious. Involucre of a few setaceous leaflets. STERILE umbel many- (20 – 40-) flowered, white. Calyx-teeth very minute. Petals oblong, obtuse. Stamens erect. Style solitary : ovary abortive. PERFECT umbel few- (4 – 8-) flowered. Petals caducous (sometimes wanting ?). Stamens often wanting. Styles diverging. Fruit obtusely triangular, with 3 elevated ridges on each side, greenish-yellow when mature.

Moist shady woods, along streams. *Fl.* April. *Fr.* May. A very neat and delicate vernal plant.

ORDER L. CORNACEÆ. *DC.* THE DOG-WOOD TRIBE.

Calyx adherent to the ovary; the limb 4-toothed: æstivation valvate. Petals distinct, equal in number to the teeth of the calyx. Stamens 4, alternate with the petals. Ovary 2-celled, with a solitary pendulous ovule in each cell: styles united into one. Fruit a 2-celled drupe, crowned with the remains of the calyx. Testa of the seed coriaceous. Embryo in the axis of fleshy albumen, and nearly equalling it in length.—Trees or shrubs, with opposite (very rarely somewhat alternate) leaves destitute of stipules. Flowers in cymes, or sometimes in heads surrounded with a petaloid involucre. Hairs mostly fixed by the centre.

1. CORNUS. *Tourn.; l'Herit. mon. Corn.* 1788; *Endl. gen.* 4574. DOGWOOD.

[From the Latin, *cornu*, a horn; owing to the toughness of the wood.]

Limb of the calyx minute. Petals oblong, spreading. Filaments filiform. Style clavate: stigma obtuse or capitate. Drupes not united with each other into a syncarpium.—Leaves entire, minute or scabrous with appressed hairs. Flowers white, rarely yellow. Bark bitter and tonic, the active principle being a peculiar substance (as yet little known) called *Cornine*.

§ 1. *Flowers in cymes, without an involucre.*

1. CORNUS ALTERNIFOLIA, *Linn. f.* *Alternate-leaved Dogwood.*

Branches alternate; leaves more or less alternate, broadly oval or ovate, acuminate, the lower surface whitish and somewhat rough; cymes loose, spreading and depressed; drupes bluish-black.—*Linn. f. suppl. p.* 125; *l'Herit. Corn. p.* 10. *t.* 6; *Michx. fl.* 1. *p.* 93; *Pursh, fl.* 1. *p.* 109; *Ell. sk.* 1. *p.* 210; *Torr. fl.* 1. *p.* 180; *Bigel. fl. Bost. p.* 58; "*Guimp. Otto & Hayne, holz. t.* 43;" *DC. prodr.* 4. *p.* 271; *Beck, bot. p.* 154; *Darlingt. fl. Cest. p.* 108; *Torr. & Gr. fl. N. Am.* 1. *p.* 650.

A small tree (10 – 20 feet high), the trunk sometimes 6 inches in diameter, with widely spreading branches and a smooth yellowish-green bark. Leaves sometimes nearly opposite, but usually alternate, though closely approximated, about 3 inches long, smooth above; the under surface pretty thickly sprinkled with centrally fixed hairs; the base acute: petiole slender, 1 – 2 inches long. Flowers in large flat cymes. Anthers linear-oblong (as in all the species of this section). Petals lanceolate, cream-colored. Drupes globose, very dark blue when mature.

Moist woods, and banks of rivers. *Fl.* May – June. *Fr.* August. The bark is one of the *Shaker medicines*, being considered diaphoretic and astringent.

2. CORNUS CIRCINATA, *l'Herit.* *Round-leaved Dogwood.*

Branches spotted and warty; leaves (large) very broadly oval or roundish, abruptly acuminate, rather densely clothed underneath with a soft whitish pubescence; cymes rather small, depressed; drupes ovoid-globose, light blue.—*L'Herit. l. c. p.* 9. *t.* 3; *Pursh, fl.* 1. *p.* 108; *Torr. fl.* 1. *p.* 179; *Bigel. fl. Bost. p.* 59; *Beck, bot. p.* 154; *DC. prodr.* 4. *p.* 272; *Torr. & Gr. fl. N. Am.* 1. *p.* 650. C. tomentulosa, *Michx. fl.* 1. *p.* 91.

A shrub 4 – 8 feet high, with straight slender branches. Leaves 4 – 5 inches long and of nearly the same breadth, obtuse at the base: pubescence of the under surface of two kinds; one closely appressed, the hairs centrally fixed; the other simple, loose and somewhat crisped: petiole less than an inch long. Cyme 2 – 2½ inches in diameter, on a peduncle about an inch in length. Calyx-teeth very short. Petals ovate-lanceolate, at length spreading or reflexed, white. Stamens longer than the petals. Style about half the length of the stamens: stigma capitate. Drupe small.

Shady banks of rivers; common in the northern and western part of the State; rare below the Highlands. *Fl.* June. *Fr.* September.

3. CORNUS STOLONIFERA, *Michx.* *White-berried Dogwood.*

Stems often reclined and stoloniferous; the shoots virgate, bright reddish-purple; branches smooth, a little spreading; leaves ovate, slightly acuminate, obtuse at the base, rather rough on both sides with a minute appressed pubescence; cymes small, flat, rather crowded; petals ovate; drupes white.—*Michx. fl.* 1. *p.* 92; *Torr. & Gr. fl. N. Am.* 1. *p.* 650. C. alba, *Wang. Amer. p.* 91; *l'Herit. l. c.* (partly); *Pursh, fl.* 1. *p.* 109; *Bigel. fl. Bost. p.* 58; *DC. prodr.* 4. *p.* 272; *Hook. fl. Bor.-Am.* 1. *p.* 276 (partly). C. Purshii, *G. Don, syst.* 3. *p.* 399. C. sanguinea, *Pursh, l. c.?* not of *Linn.*

Stems 5 – 10 feet long, erect, or prostrate and rooting; the bark dotted with a few small oval warts. Leaves 3 – 4 inches long and 2 – 3 inches wide; the hairs on both sides fixed by the middle: petiole an inch or more in length. Cymes about an inch and a half in diameter. Calyx-teeth very minute. Petals white. Drupes small, globose, white or somewhat lead-colored when fully ripe.

Banks of streams, and in swamps. Northern and western parts of the State. May – June. This species has been confounded with *C. alba* of Siberia, from which it is quite distinct.

4. CORNUS PANICULATA, *l'Herit.* (Plate xli.) *Panicled Dogwood.*

Branches (grayish) erect, smooth; leaves ovate-lanceolate or oval, finely acuminate, acute at the base, roughish on both sides with a minute appressed pubescence, whitish underneath; cymes loose, convex or usually paniculate; petals lanceolate; drupes small, depressed.—*L'Herit. l. c. p.* 9. *t.* 5; *Pursh, fl.* 1. *p.* 109; *Ell. sk.* 1. *p.* 209; *Torr. fl.* 1. *p.* 179; *Bigel. fl. Bost. p.* 59; *Beck, bot. p.* 154; *Darlingt. fl. Cest. p.* 108; *Torr. & Gr. fl. N. Am.* 1. *p.* 650.

A shrub 4 – 8 feet high, with straight somewhat dotted branches. Leaves 2 – 3 inches long and 1 – 1½ inch wide, pale green above, sprinkled with short whitish hairs. Cymes very numerous, giving the shrub a white appearance when in flower, elongated when in fruit. Calyx-teeth minute. Ovary canescent: stigma thick, capitate. Petals rather acute. Drupes about the size of a small pea, at first nearly white, but when fully mature assuming a leaden tinge.

Thickets, low grounds, and on hill-sides. *Fl.* May – June. *Fr.* September. Very distinct from *C. stolonifera.*

5. CORNUS SERICEA, *Linn.* *Swamp Dogwood. Red-rod.*

Branches spreading, purplish; the branchlets, cymes and petioles woolly-pubescent; leaves ovate or elliptical, acuminate, nearly smooth above, silky-pubescent underneath; cymes depressed, crowded; calyx-teeth lanceolate; petals lanceolate-oblong, obtuse; drupes globose, pale blue. — *Linn. mant. p.* 199; *l'Herit. l. c. p.* 5. *t.* 2; *Pursh, fl.* 1. *p.* 108; *Ell. sk.* 1. *p.* 208; *Bart. veg. mat. med.* 1. *t.* 9; *Torr. fl.* 1. *p.* 178; *DC. prodr.* 4. *p.* 472; *Beck, bot. p.* 153; *Darlingt. fl. Cest. p.* 107; *Torr. & Gr. fl. N. Am.* 1. *p.* 652. C. lanuginosa, *Michx. fl.* 1. *p.* 92.

A shrub 6 – 12 feet high, with straight spreading branches; the bark of a greenish- or brownish-purple color. Leaves 2 – 4 inches long and 1 – 2 inches wide, the pubescence a little shining; veins somewhat rusty-colored: petioles about three-fourths of an inch long. Cymes on a long peduncle, about 2½ inches in diameter. Calyx-teeth very conspicuous. Petals white. Stigma thick, capitate.

Margin of swamps and banks of streams. *Fl.* June. *Fr.* September.

§ 2. *Flowers capitate, surrounded by a petaloid involucre. — Trees.*

6. CORNUS FLORIDA, *Linn.* *Common Dogwood. Flowering Dogwood.*

Leaves of the involucre 4, obcordate, with a callous notch at the apex; drupes oval; leaves ovate, acuminate.— *Linn. sp.* 1. *p.* 117; *l'Herit. l. c. p.* 4; *Michx. fl.* 1. *p.* 91; *Bot. mag. p.* 526; *Michx. fl. sylv. t.* 48; *Pursh, fl.* 1. *p.* 108; *Ell. sk.* 1. *p.* 207; *Bigel. med. bot.* 2. *t.* 28, *and fl. Bost. p.* 57; *Torr. fl.* 1. *p.* 178; *Bart. veg. mat. med.* 1. *t.* 3; *Beck, bot. p.* 153; *Darlingt. fl. Cest. p.* 106; "*Guimp. Otto & Heyne, holz. t.* 19;" *Torr. & Gr. fl. N. Am.* 1. *p.* 652.

A tree 15 – 30 feet high, with a trunk 3 – 7 inches in diameter; the bark grayish, and cracked into small portions which are more or less square in their outline: wood hard and very compact, the alburnum white, and the heart of a brownish or chocolate color. Branches expanding. Leaves acute at the base, whitish underneath; the hairs mostly fixed by the middle. Flowers sessile, in small dense heads, which are subtended by a large white or slightly purplish involucre nearly three inches in diameter. Calyx-teeth short, triangular,

rather obtuse. Petals oblong, obtuse, at length reflexed, greenish-yellow. Anthers oval. Stigma capitate. Drupe bright scarlet and shining when mature.

In woods; common. *Fl.* May. *Fr.* September – October.

This tree, when in full flower, is one of the greatest ornaments of the American forest. The wood, on account of its close grain and hardness, is extremely useful. It is often employed as a substitute for *box*, and is susceptible of a fine polish. It also makes excellent cogs for wheels, teeth for harrows, and is used for a variety of other purposes where a hard, durable, fine-grained wood is required. It frequently constitutes a portion of the firewood brought to the city of New-York, and is esteemed nearly equal to hard maple. The bark is a valuable tonic. See the works of Bigelow and Barton quoted above; also *Wood & Bache's U. S. Dispens. p.* 265.

§ 3. *Flowers in contracted umbel-like cymes, surrounded by a petaloid involucre: stem herbaceous.*

7. Cornus Canadensis, *Linn.* *Dwarf Dogwood.*

Subterranean trunk creeping, a little woody; flowering stems simple, ascending; upper leaves verticillate, on very short petioles; involucre 4-leaved, much longer than the flowers; petals greenish-white.— *Linn. amœn. acad.* 1. *p.* 157, *and spec.* 1. *p.* 117; *l'Herit. l. c. p.* 2. *t.* 1; *Bot. mag. t.* 880; *Michx. fl.* 1. *p.* 91; *Pursh, fl.* 1. *p.* 107; *Torr. fl.* 1. *p.* 177; *Bigel. fl. Bost. p.* 57; *Hook. fl. Bor.-Am.* 1. *p.* 277; *DC. prodr.* 4. *p.* 274; *Beck, bot. p.* 153; *Torr. & Gr. fl. N. Am.* 1. *p.* 652.

Subterranean stems long, slender. Flowering stems about 6 inches high, with one or two pairs of bracts or small opposite leaves, and a whorl of usually 6 oval or oval-lanceolate leaves at the summit, both surfaces of which are sprinkled with very minute centrally fixed hairs. Peduncle about an inch long. Involucral leaves greenish-white, broadly ovate, abruptly acuminate. Cyme many-flowered, much shorter than the involucre. Calyx-tube oblong-turbinate: teeth short, obtuse. Petals ovate, one of them (in all my specimens) with a long subulate process at the summit. Anthers oblong, yellow. Drupes globose, bright red, somewhat edible.

Damp woods and shady swamps; rather common. *Fl.* May – June. *Fr.* September.

Subclass II. Monopetalous Exogenous Plants.*

Floral envelopes consisting of both calyx and corolla; the petals more or less united (monopetalous or gamopetalous).

CONSPECTUS OF THE GROUPS AND ORDERS.

Group 1. Ovary coherent with the calyx (inferior), 2 – several-celled, with one or many ovules in each cell. Seeds albuminous. Stamens inserted on the corolla.

Order 51. Caprifoliaceæ. Stipules none. Leaves opposite.

52. Rubiaceæ. Stipules between the petioles; or the leaves in whorls.

1. Suborder Stellatæ. Leaves in whorls.
2. Suborder Cinchoneæ. Leaves opposite.

Group 2. Ovary coherent with the calyx, one-celled and one-ovuled, rarely 3-celled with two of the cells empty. Seeds with little or no albumen. Stamens inserted on the corolla:

53. Valerianaceæ. Flowers not in involucrate heads. Stamens distinct. Seeds without albumen.
54. Dipsaceæ. Heads dense, involucrate. Stamens distinct. Seeds albuminous.
55. Compositæ. Heads dense, involucrate. Stamens syngenesious. Seeds without albumen.

Group 3. Ovary coherent with the calyx, with 2 or more cells and numerous ovules. Fruit capsular. Seeds albuminous. Stamens inserted with the corolla: anthers not opening by pores.

56. Lobeliaceæ. Corolla irregular. Stamens united.
57. Campanulaceæ. Corolla regular. Stamens distinct.

Group 4. Ovary free from the calyx, superior, or sometimes coherent with it, with 2 or more cells and numerous ovules. Seeds albuminous. Stamens inserted with the corolla, or rarely coherent with its base, as many or twice as many as its lobes: anthers mostly opening by pores or chinks.

58. Ericaceæ. Character same as that of the group.

Group 5. Ovary free, or rarely coherent with the calyx, several-celled, with a single ovule (or at least a single seed) in each cell. Stamens definite: anthers not opening by pores.— Trees or shrubs.

59. Aquifoliaceæ. Sepals 4 – 6. Corolla 4 – 6-parted or cleft. Stamens as many as the segments of the corolla. Fruit drupaceous, with 2 – 6 stones or nucules.—Leaves mostly coriaceous. Flowers small, axillary.
60. Ebenaceæ. Calyx and corolla 3 – 6-cleft. Stamens 2 – 4 times as many as the lobes of the corolla. Fruit a berry.

Group 6. Ovary free (superior), or with only the base coherent with the tube of the calyx, one-celled, with a free central placenta. Stamens inserted into the regular corolla opposite its lobes, which they equal in number.

61. Primulaceæ. Corolla rotate, hypocrateriform or campanulate. Style and stigma single. Fruit capsular, with a free central placenta at the base of the cell.— Herbaceous plants.

Group 7. Ovary free, one-celled, with a single ovule; or 2-celled, with several ovules attached to a thick central placenta. Stamens as many as the lobes of the regular corolla, or the nearly distinct petals.

62. Plantaginaceæ. Calyx 4-cleft, persistent. Corolla tubular or urn-shaped, membranaceous, persistent, 4-cleft. Stamens 4, inserted on the tube of the corolla. Capsule 2-celled, opening transversely.—Mostly low herbs, with small flowers in spikes.
63. Plumbaginaceæ. Calyx tubular, 5-toothed, plaited. Corolla 5-parted, or sometimes 5-petalled. Styles or stigmas 5.

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* A few Ericaceæ are more or less polypetalous (See note, page 1).

GROUP 8. Ovary free, 1 – 2- (sometimes spuriously 4-) celled, with numerous ovules. Corolla 2-lipped or irregular; the stamens inserted upon its tube, and mostly fewer than its lobes, or often didynamous.

* Ovary one-celled.

64. LENTIBULACEÆ. Ovary with a free central placenta.— Herbs, growing in water or wet places. Flowers on scapes.

65. OROBANCHACEÆ. Ovary with parietal placentæ.— Herbs; parasitic on roots, destitute of foliage.

** Ovary 2-celled, with the placentæ in the axis.

66. PEDALIACEÆ. Ovary surrounded with a fleshy disk. Fruit indurated or drupaceous, often 2 – 4-horned. Seeds without albumen.— Usually viscid herbs.

67. SCROPHULARIACEÆ. Stamens 4, didynamous (rarely only 2, or with a 5th sterile filament). Capsule 2-valved. Seeds numerous, albuminous.

GROUP 9. Ovary free, 2 – 4-lobed, and in fruit separating into as many one-seeded little nuts or achenia, or else entire and drupaceous, including as many one-seeded nucules. Corolla regular or irregular; the stamens inserted upon its tube, equalling its lobes, or fewer in number.

68. VERBENACEÆ. Corolla 2-lipped, or 4 – 5-lobed and more or less irregular. Stamens mostly 4 and didynamous, sometimes only 2. Ovary entire, 2 – 4-celled. Fruit drupaceous, baccate or dry, usually splitting into 2 – 4 indehiscent carpels.

69. LABIATÆ. Corolla 2-lipped. Stamens 4, didynamous, or only 2. Ovary deeply 4-lobed; the style proceeding from the base of the lobes. Fruit consisting of 4 little nuts or achenia included in the persistent calyx.—Aromatic herbs, or somewhat shrubby plants with square stems.

70. BORAGINACEÆ. Corolla regular; the limb 5-lobed, often with a row of scales in the throat. Stamens as many as the lobes of the corolla, and alternate with them. Fruit consisting of 4 little nuts or achenia.— Herbs or sometimes shrubby plants, with round stems and alternate rough leaves.

GROUP 10. Ovary free (superior), compound or with the carpels distinct, with several or numerous (rarely solitary) ovules in each cell. Corolla regular; the stamens inserted on its tube, as many as its lobes and alternate with them.

* Ovary compound, of 2 or more united carpels.

71. HYDROPHYLLACEÆ. Calyx 5-cleft, with the sinuses often appendaged. Corolla usually furnished with scales or honey-bearing grooves inside; the five stamens inserted into its base. Ovary with two parietal placentæ.— Herbs with lobed leaves.

72. DIAPENSIACEÆ. Calyx of 5 imbricated sepals. Corolla 5-lobed. Stamens with petaloid filaments: anthers transversely 2-valved. Capsule 3-valved. Embryo with a slender radicle and short cotyledons.— Low evergreen shrubs.

73. CONVOLVULACEÆ. Calyx of 5 imbricated sepals. Corolla plaited and twisted in æstivation; the limb often entire. Stamens 5. Capsule 2 – 4- (sometimes 1-) celled, septifragal. Seeds large, with foliaceous crumpled cotyledons.— Twining plants, with showy flowers.

74. SOLANEÆ. Calyx of 4 – 5 more or less united sepals. Corolla regular or sometimes a little irregular, plaited in æstivation. Capsule or berry 2-celled, many-seeded. Embryo mostly curved, in fleshy albumen.— Herbs or shrubs, with watery juice and alternate leaves.

75. GENTIANACEÆ. Calyx of 4 – 5 persistent, more or less united sepals. Corolla mostly twisted in æstivation. Ovary one-celled, with 2 parietal but often introflexed placentæ. Capsule many-seeded. Seeds with fleshy albumen and a minute embryo.—Herbs with a watery juice. Leaves mostly opposite. Flowers showy.

** Ovaries mostly 2, and distinct. Fruit usually consisting of 2 follicles.

76. APOCYNACEÆ. Filaments distinct; the anthers sometimes slightly connected. Pollen granular.

77. ASCLEPIADACEÆ. Stamens consolidated with the stigma. Pollen collected into masses, which are attached to the angles of the stigma.

GROUP 11. Ovary free, 2-celled, with 1 – 3 ovules in each cell. Fruit 1 – 2-seeded. Corolla regular, sometimes nearly polypetalous, occasionally wanting. Stamens 2, or fewer than the lobes of the corolla, inserted upon its tube or upon the receptacle.— Shrubs or trees.

78. OLEACEÆ. Calyx persistent. Corolla 4-cleft, or of 4 distinct petals. Stamens 2. Fruit usually one-celled, 1 – 2-seeded.

GROUP 1. *Ovary coherent with the calyx (inferior), 2 – several-celled, with one or many ovules in each cell. Seeds albuminous. Stamens inserted on the corolla.*

ORDER LI. CAPRIFOLIACEÆ. *Juss.* THE HONEYSUCKLE TRIBE.

Calyx 5- (rarely 4-) toothed or cleft. Corolla tubular or sometimes rotate, regular or irregular. Stamens as many as the lobes of the corolla, and alternate with them (rarely one of them wanting). Style filiform. Fruit usually a berry or drupe, rarely capsular. — Shrubs or rarely herbaceous plants, with opposite leaves which are destitute of stipules. Inflorescence various.

TRIBE I. *LONICEREÆ. R. Brown.*

Corolla tubular; the limb sometimes irregular. Style filiform. Raphe on the outer side of the ovule.

Subtribe 1. CAPRIFOLIÆ, Torr. & Gr. *Fruit baccate, or sometimes nearly dry. Testa of the seed crustaceous or coriaceous.*

CONSPECTUS OF THE GENERA.

1. LINNÆA. Limb of the calyx 5-parted. Corolla regular, somewhat campanulate, 5-lobed. Stamens didynamous. Ovary 3-celled; two of the cells abortive. Fruit dry, one-seeded.
2. SYMPHORICARPUS. Calyx 4 – 5-toothed. Corolla campanulate, short, nearly regular, 4 – 5-lobed. Berry 4-celled; 2 of the cells abortive; 2 opposite ones fertile and one-seeded.
3. LONICERA. Calyx 5-toothed. Corolla 5-cleft, often ringent; the tube more or less elongated. Stamens 5. Berry 1 – 3-celled, few-seeded.
4. DIERVILLA. Calyx with linear segments; the tube elongated. Fruit capsular, 2-celled, 2-valved.

1. LINNÆA. *Gron. in Linn. gen. no.* 744; *Endl. gen.* 3332. *LINNÆA.*

[Named in honor of the immortal Swedish naturalist.]

Calyx-tube ovate; the limb 5-parted, with lanceolate-subulate segments, deciduous. Corolla turbinate-campanulate, 5-lobed, nearly equal. Stamens 4, didynamous, included, inserted toward the base of the corolla. Ovary 3-celled; two of the cells with several abortive ovules; the third with a single fertile ovule suspended from the summit. Fruit ovoid-globose, dry and indehiscent, 3-celled (the 2 sterile cells smaller), one-seeded.—A creeping or trailing evergreen, with broadly oval sparingly crenate-toothed leaves, abruptly narrowed into a petiole. Peduncles filiform, terminating the short ascending branches, bearing 2 pedicellate nodding flowers. Corolla purplish rose-color, or nearly white.

1. LINNÆA BOREALIS, *Gron.* *Two-flowered Linnæa*, or *Twin-flower.*

Linn. fl. Lapp. p. 214. *t.* 12. *f.* 4; *fl. Suec. ed.* 2. *p.* 219 (icon.); *and spec.* 2. *p.* 631; *Engl. bot. t.* 1297; *Michx. fl.* 1. *p.* 87; *Pursh, fl.* 1. *p.* 413; *Torr. fl.* 1. *p.* 175; *Bigel. fl. Bost. p.* 241; *DC. prodr.* 4. *p.* 340; *Hook. fl. Bor.-Am.* 1. *p.* 285; *Beck, bot. p.* 159; *Torr. & Gr. fl. N. Am.* 2. *p.* 3.

Stems filiform, somewhat woody, pubescent, throwing up numerous short leafy branches. Leaves about half an inch long, sparsely hispid on both sides; the petioles 1 – 3 lines long. Peduncles 2 – 4 inches long, slender, clothed with glandular hairs, with two bracts at the bifurcation. Flowers about half an inch long, very fragrant. Calyx-tube with two pair of minute hispid bracteoles at the base. Corolla obtusely 5-lobed, hairy inside. Style slightly exserted: stigma capitate.

Moist shady woods, and in swamps; sometimes in rather dry situations; common in the northern and western counties, but rare along the Hudson below the Highlands. June – July. A very neat and graceful plant.

2. SYMPHORICARPUS. *Dill. Elth. p.* 371; *Endl. gen.* 3334. SYMPHORIA, *Pursh.*

SNOWBERRY.

[From the Greek, *symphyo*, to grow together, and *karpos*, fruit; the berries growing in dense clusters.]

Calyx-tube globose; the limb 4 – 5-toothed, persistent. Corolla funnel-form or campanulate, 4 – 5-lobed, nearly regular. Stamens 4 – 5, inserted into the throat of the corolla. Ovary 2-celled; 2 of the cells with several abortive ovules; the 2 others (opposite) each with a single fertile ovule pendulous from the summit. Stigma capitate. Fruit a globose or ovoid berry, 4-celled; 2 opposite cells one-seeded, the others empty. Seeds coriaceous.—Small branching shrubs, with oval leaves on short petioles. Flowers small, rose-colored or white, in short axillary clusters or terminal spikes. Berries red or white.

1. SYMPHORICARPUS RACEMOSUS, *Michx.* *Common Snowberry.*

Spikes terminal, loose, interrupted, often somewhat leafy; flowers on short pedicels; corolla campanulate, densely bearded inside; style (smooth) and stamens included. — *Michx. fl.* 1. *p.* 107; *DC. prodr.* 4. *p.* 339; *Hook. fl. Bor.-Am.* 1. *p.* 285; *Torr. & Gr. fl. N. Am.* 2. *p.* 3. Symphoria racemosa, *Pers. syn.* 1. *p.* 214; *Pursh, fl.* 1. *p.* 169; *Bot. mag. t.* 2211; *Nutt. gen.* 1. *p.* 139; *Lodd. bot. cab. t.* 230; *Bart. fl. Am. Sept.* 1. *t.* 19; *Torr. fl.* 1. *p.* 246.

A shrub 2 – 3 feet high; the branches numerous, slender, slightly pubescent, clothed with loose bark. Leaves 1 – 2 inches long, more or less broadly ovate, often undulate on the margin, and those of the young shoots sometimes obtusely toothed; under surface softly and densely pubescent, smoothish above: petioles 2 – 3 lines long. Spikes mostly pedunculate; the flowers opposite, with 2 ovate-acute bracteoles at the base of the calyx-tube. Teeth of

the calyx acute. Corolla about three lines long, rose-color. Berries globose and roundish-obovoid, very white and opake, 4 – 5 lines in diameter, spongy and somewhat juicy; the 2 abortive cells each containing about 3 shrivelled ovules. Seeds elliptical, compressed; the testa thick and coriaceous.

Rocky banks of rivers, mostly on limestone. On the Black River, near Watertown; Rochester; Falls of Niagara, &c. *Fl.* June – July. *Fr.* August – October.

2. SYMPHORICARPUS VULGARIS, *Michx.* *Indian Currant.*

Spikes axillary, almost sessile, in little glomerate heads; corolla campanulate, the lobes smoothish inside; stamens and bearded style included.—*Michx. fl.* 1. *p.* 106; *DC. prodr.* 4. *p.* 339; *Torr. & Gr. fl. N. Am.* 2. *p.* 4. Lonicera Symphoricarpos, *Linn. sp.* 1. *p.* 175. Symphoria conglomerata, *Pers. syn.* 1. *p.* 215. S. glomerata, *Pursh, fl.* 1. *p.* 161; *Nutt. gen.* 1. *p.* 139; *Torr. fl.* 1. *p.* 246. Symphoricarpus, *Dill. hort. Elth. t.* 278.

A shrub 2 – 3 feet high, with numerous erect purplish and pubescent branches. Leaves entire or undulate, on shorter petioles than in the preceding species, tomentose-pubescent underneath. Spikes or little heads not one-fourth part the length of the leaves, 6 – 10-flowered. Corolla about 2 lines long, greenish-red; the tube bearded inside. Berries about the size of a small currant, dark red, globose.

Banks of rivers. Yates county (*Dr. Sartwell*).

3. LONICERA. *Linn.*; *Endl. gen.* 3337. *HONEYSUCKLE.*

XYLOSTEON, CAPRIFOLIUM, CHAMÆCERASUS and PERICLYMENUM, *Tourn.*

[In honor of ADAM LONICER, a German botanist of the 16th century.]

Calyx-tube ovoid or nearly globose; the limb short, 5-toothed. Corolla tubular, funnel-form or campanulate, often gibbous at the base; the limb 5-cleft, nearly regular, or ringent. Stamens 5. Stigma capitate. Berry 2 – 3-celled, or by obliteration 1-celled, few-seeded. Seed crustaceous.—Climbing or erect shrubs. Leaves entire; the upper ones often connate. Flowers axillary and pedunculate, or in sessile heads or whorls, often fragrant.

§ 1. CAPRIFOLIUM, Juss. *Stem climbing: leaves often connate: flowers sessile, in verticillate-capitate clusters: berries never connate, often one-celled when mature, crowned with the persistent limb of the calyx.*

* PERICLYMENUM, Tourn. *Corolla nearly regular.*

1. LONICERA SEMPERVIRENS, *Ait.* *Scarlet* or *Trumpet Honeysuckle.*

Leaves oblong and elliptical, smooth above, glaucous and slightly pubescent underneath, the lower ones somewhat petioled, the upper connate-perfoliate; flowers in somewhat distant whorls; corolla trumpet-shaped, with short and broad nearly equal lobes.—*Ait. Kew.* (ed. 1.)

1. *p.* 230; *Walt. fl. Car. p.* 131; *Bot. mag. t.* 781 & 1753; *Bot. reg. t.* 556; *Torr. fl.* 1. *p.* 244; *DC. prodr.* 4. *p.* 432; *Beck, bot. p.* 158; *Torr. & Gr. fl. N. Am.* 2. *p.* 5. Caprifolium sempervirens, *Michx. fl.* 1. *p.* 105; *Pursh, fl.* 1. *p.* 160; *Ell. sk.* 1. *p.* 271.

Stem twining over shrubs, 6 – 15 feet long. Leaves 2 – 3 inches long; the lower ones of the flowering branches narrow-elliptical, the upper ones much broader: petioles of the stem-leaves often half an inch or more in length. Peduncles an inch long: whorls about 6-flowered. Flowers inodorous. Corolla nearly an inch and a half long, scarlet externally, yellowish within; the tube slightly ventricose above, and a little gibbous towards the base. Stamens slightly exserted. Berries scarlet, about 4-seeded.

Borders of swamps, and on bushy hill-sides; in several places on the Island of New-York; also on Long Island, near Brooklyn: not found in the interior of the State. *Fl.* May – June. This species is very common in gardens, but it is undoubtedly native in the vicinity of New-York.

** CAPRIFOLIUM, Tourn. *Corolla ringent; the upper lip* 4-*lobed or* 4-*toothed.*

2. LONICERA GRATA, *Ait.* *Wild Honeysuckle.*

Stem twining; leaves obovate, smooth, glaucous underneath, the lower ones contracted at the base, the two or three upper pairs connate-perfoliate; flowers verticillate in the axils of the upper leaves or leaf-like connate bracts; tube of the corolla long and slender, not gibbous; filaments smooth.—*Ait. Kew.* (ed. 1.) 1. *p.* 231; *DC. prodr.* 4. *p.* 332; *Beck, bot. p.* 158; *Darlingt. fl. Cest. p.* 159; *Torr. & Gr. fl. N. Am.* 2. *p.* 6. Caprifolium gratum, *Pursh, fl.* 1. *p.* 161; *Ell. sk.* 1. *p.* 152.

Stem 10 – 20 feet long, twining or trailing; the young branches often quite hairy. Leaves about 2 inches long, very obtuse, or with a short blunt point. Flowers about 6 in each whorl, very fragrant; the smooth corolla an inch and a half long, externally red or purplish; the limb (large) at first nearly white, soon changing to tawny yellow. Stamens exserted. Berries orange-red. *Torr. & Gr.*

Mountains; New-York to Carolina (*Pursh*). I have not found the plant in the State, and give the description from the Flora of North America, taken from Pennsylvania specimens. It is very near *L. Caprifolium* of Europe.

3. LONICERA FLAVA, *Sims.* *Yellow Honeysuckle.*

Smooth and somewhat glaucous; stem scarcely twining; leaves ovate, obovate or oval, with a narrow cartilaginous margin, the upper pairs connate-perfoliate, the lowest distinct; flowers in small heads or approximate whorls; tube of the smooth corolla slender, not gibbous; filaments smooth.— *Sims, bot. mag. t.* 1318; *Torr. fl.* 1. *p.* 243; *DC. prodr.* 4. *p.* 332; *Beck, bot. p.* 158; *Torr. & Gr. fl. N. Am.* 2. *p.* 6. Caprifolium Fraseri, *Pursh, fl.* 1. *p.* 160. C. flavum, *Ell. sk.* 1. *p.* 271.

Leaves 1½ – 3 inches long, very smooth above, glaucous and often with a minute and soft whitish caducous pubescence underneath, obtuse or with a blunt mucronate point. Flowers 8 – 12, in a subsessile or somewhat pedunculate head, or sometimes in 2 – 3 verticillate clusters, fragrant. Corolla bright yellow, an inch or more long; the tube much longer than the ventricose limb, very slightly dilated near the base, but not gibbous; the lower lip narrowly oblong; the upper 4-lobed. Stamens exserted. *Torr. & Gr.*

On the Catskill Mountains (*Pursh*). I have never seen specimens of this plant collected within the limits of New-York.

4. LONICERA HIRSUTA, *Eaton.* *Hairy Honeysuckle.*

Stem twining, the younger branches pubescent; leaves broadly oval, somewhat hairy above, softly villous underneath, ciliate, the upper one or two pairs connate-perfoliate, often nearly smooth; the lower ones sessile or petioled; peduncles mostly three together; the flowers in approximate capitate whorls; tube of the corolla viscid-pubescent, rather slender, slightly gibbous at the base. — *Eaton, man. bot. ed.* 3. *p.* 341; *Torr. fl.* 1. *p.* 242; *Bigel. fl. Bost. p.* 88; *Hook. bot. mag. t.* 3163, *and fl. Bor.-Am.* 1. *p.* 282; *Beck, bot. p.* 158; *Torr. & Gr. fl. N. Am.* 2. *p.* 6. L. villosa, *Muhl. cat. p.* 22, not of *DC.* L. pubescens, *Sweet, hort. Brit. p.* 194; *DC. prodr.* 4. *p.* 332. L. Goldii, *Spreng. syst.* 1. *p.* 758. Caprifolium pubescens, *Goldie in Edinb. phil. journ.* (1822), 6. *p.* 323; *Hook. exot. fl. t.* 27.

Stem 15 – 30 feet long. Leaves pale green and dull, 3 – 4 inches long and 2 – 3 broad, rather acute, or with a short abrupt acumination; the veins very conspicuous; the upper surface more or less pubescent when young, nearly smooth when old: the upper connate leaves nearly smooth on both sides. Peduncles, and often also the ovaries, glandularly pubescent. Flowers numerous, about an inch and a quarter long, sulphur-yellow. Corolla hairy inside; the limb large, and conspicuously ringent. Style and stamens exserted. Berries orange, glandularly pubescent, 3 – 5-seeded.

Rocky banks and damp thickets; northern and western parts of the State; also near Troy (*Eaton*). June – July.

5. LONICERA PARVIFLORA, *Lam.* *Small-flowered Honeysuckle.*

Leaves elliptical or oblong, smooth, very glaucous underneath, with a slight often undulate cartilaginous border, the upper pair connate-perfoliate, the others sessile and mostly somewhat connate; flowers in a more or less pedunculate head of 2 – 3 closely approximated whorls; corolla short, smooth externally, gibbous at the base. — *Lam. dict.* 1. *p.* 728; *Torr. fl.* 1. *p.* 245; *Bigel. fl. Bost. p.* 87; *DC. prodr.* 4. *p.* 332; *Hook. fl. Bor.-Am.* 1. *p.* 282; *Beck, bot. p.* 158; *Darlingt. fl. Cest. p.* 158; *Torr. & Gr. fl. N. Am.* 2. *p.* 7. L. dioica, *Linn. syst.* (ed. 13.) *p.* 181; *Ait. Kew.* (ed. 1.) 1. *p.* 130; *Bot. reg. t.* 138. Caprifolium glaucum, *Mœnch. meth. p.* 505. C. bracteosum, *Michx. fl.* 1. *p.* 105. C. parviflorum, *Pursh, fl.* 1. *p.* 161. C. dioicum, *Rœm. & Schult. syst.* 5. *p.* 260.

Stem 6 – 10 feet long, trailing or twining, much branched; the flowering shoots glaucous. Leaves usually 2 – 3 inches long and 1 – 1½ broad, sometimes much larger; lowest ones often narrowed at the base, but never petiolate. Corolla about three-fourths of an inch long, yellow, tinged more or less (sometimes deeply) with purple. Stamens exserted, hairy below. Berries reddish-orange.

Rocky banks of rivers, and on mountains; not rare. June.

§. XYLOSTEON, Juss. *Leaves never connate: peduncles axillary, 2 – 4-bracteate and 2- (rarely 3-) flowered: berries in pairs, distinct or often united, 2 – 3-celled; the limb of the calyx often deciduous.*

6. LONICERA CILIATA, *Muhl.* (Plate XLII.) *Fly Honeysuckle.*

Stem erect; leaves ovate-oblong, often cordate, ciliate with fine hairs, the younger ones villous underneath; peduncles shorter than the leaves; bracts shorter than the ovaries; teeth of the calyx very obtuse; corolla somewhat funnel-form, obtusely saccate at the base, the lobes short and somewhat equal; berries distinct, diverging.— *Muhl. cat. p.* 22; *DC. prodr.* 4. *p.* 335; *Beck, bot. p.* 158; *Hook. fl. Bor.-Am.* 1. *p.* 283; *Torr. & Gr. fl. N. Am.* 2. *p.* 9. L. Canadensis, *Rœm. & Schult. syst.* 5. *p.* 260. Xylosteum Tartaricum, *Michx. fl.* 1. *p.* 106 (not L. Tartarica, *Linn.*). X. ciliatum, *Pursh, fl.* 1. *p.* 161 (excl. β.); *Torr. fl.* 1. *p.* 245; *Bigel. fl. Bost. p.* 88.

A shrub 3 – 5 feet high; the branchlets smooth, and marked with elevated lines which descend from the bases of the petioles. Leaves 1 – 2½ inches long, more or less ovate, broad at the base, thin, quite smooth when mature, except the ciliate margin: petioles about three lines long. Peduncles of the flowers about three quarters of an inch long, of the fruit an inch or more. Flowers about 8 lines long. Bracteoles at the base of the flower, shorter than the ovary. Corolla pale greenish-yellow. Filaments smooth. Style exserted. Berries ovoid, smooth, about one-fourth of an inch long, red, 3 – 5-seeded. Seeds oval, yellowish, compressed, finely pitted.

Rocky woods and shady hill-sides, sometimes in swamps; western and northern part of the State; rare south of Catskill. *Fl.* May. *Fr.* July.

7. LONICERA CÆRULEA, *Linn.* *Hairy Fly-Honeysuckle.*

Stem erect; leaves oval or obovate-oblong, hairy on both surfaces, nearly smooth above when old; peduncles very short, reflexed in fruit; bracts subulate, longer than the ovaries; corolla gibbous at the base, the lobes short, nearly equal; berries (deep blue and glaucous) globose, formed by the union of two ovaries. — *Linn. sp.* 1. *p.* 174; *Pall. fl. Ross. t.* 37; *Bot. mag.* 1965; *DC. prodr.* 4. *p.* 437; *Hook. fl. Bor.-Am.* 1. *p.* 283; *Torr. & Gr. fl. N. Am.* 2. *p.* 9. L. cærulea Canadensis, *Lam. dict.* 1. *p.* 731, ex *DC.* L. villosa, *DC. l. c.* (excl. syn. *Goldie, Torr. &c.*); *Beck, bot. p.* 150. Xylosteum Solonis, *Eaton, man. bot. p.* 518. X. villosum, *Bigel. fl. Bost. p.* 88; *Torr. fl.* 1. *p.* 245 (excl. syn. *Gold. & Muhl.*)

A shrub 1 – 3 feet high; the younger branches mostly villous. Leaves about three-fourths of an inch long when the plant is in flower, considerably larger and much less hairy at maturity, very obtuse. Flowers 7 – 8 lines long, on peduncles only 1 – 2 lines long. Corolla somewhat bilabiate, yellow, smooth or a little pubescent; the lobes longer than the tube, oblong, nearly erect. Stamens somewhat exserted: filaments bearded. Berries closely united to the summit, crowned with the remains of two closely approximated calyces.

Woods, and on the sides of mountains. Poughkeepsie; Highlands of Putnam county (*Dr. Barratt*); Mountains of Essex county; near Vernon (*Dr. Douglas*). *Fl.* June.

8. LONICERA OBLONGIFOLIA, *Hook.* *Long-stalked Honeysuckle.*

Stem erect; leaves oblong or oval, velvety-pubescent when young, at length nearly smooth; peduncles filiform, erect, much longer than the flowers; bracts minute; corolla gibbous at the base, deeply 2-lipped; berries (purple) formed by the union of two ovaries. — *Hook. fl. Bor.-Am.* 1. *p.* 284. *t.* 100; *Torr. & Gr. fl. N. Am.* 2. *p.* 10. L. villosa, *DC. prodr.* 4. *p.* 337 (partly). Xylosteum oblongifolium, *Goldie in Edinb. phil. journ.* (1822), 6. *p.* 323.

A shrub 3 – 4 feet long, much branched. Leaves 1 – 2 inches long, narrowed at the base, but scarcely petioled. Peduncles an inch or more in length. Calyx-tube nearly globose; the bracteoles at the base nearly obsolete. Corolla about three-fourths of an inch long, greenish-yellow, tinged with purple inside; lower lip oblong-linear, often spreading; upper lip erect, with 4 short lobes. Stamens slightly exserted; the filaments smoothish. Style hairy. Berries about the size of a small pea, slightly separate at the summit, and crowned with the remains of two calyces.

Sphagnous swamps; northern and western parts of the State; rare. May – June. Easily distinguished from the preceding by its long peduncles and obsolete bracteoles, as well as by its larger leaves, etc.

4. DIERVILLA. *Tourn. in act. acad. Par.* (1706), *t.* 7. *f.* 1; *Sieb. & Zucc. fl. Japon. p.* 68. *t.* 29 – 32. *BUSH HONEYSUCKLE.*

[Dedicated to M. DIERVILLE, a French surgeon, who sent the plant to Tournefort.]

Calyx-tube oblong or cylindrical, often attenuated at the summit: segments of the 5-parted limb linear or subulate. Corolla funnel-form; the limb 5-cleft, nearly regular or slightly 2-lipped. Stamens 5. Fruit capsular, membranaceous or crustaceo-coriaceous, 2-celled, 2-valved; the 2-lobed placentæ usually strongly projecting into the cells, each bearing numerous seeds in a double series. Seeds naked or crested.— Shrubby plants, with ovate or oblong acute-serrate leaves. Peduncles axillary or terminal, one-flowered or cymosely 3 – 7-flowered; the flowers all with 2 bracteoles at the base.

§. DIERVILLA proper, *Torr. & Gr. Flowers yellowish: capsule membranaceous: seeds not furnished with a crest or wing; the testa crustaceous.*

1. DIERVILLA TRIFIDA, *Mœnch.* *Common Bush-Honeysuckle.*

Leaves oblong-ovate, acuminate, on short petioles, smooth or somewhat hairy on the veins underneath; peduncles 1 – 3-flowered; capsule attenuate at the summit, crowned with the linear-setaceous teeth of the calyx.—*Mœnch, meth. p.* 492; *Torr. & Gr. fl. N. Am.* 2. *p.* 11. D. Acadiensis fruticosa, &c. *Tourn.* D. Tournefortii, *Michx. fl.* 1. *p.* 107; *Torr. fl.* 1. *p.* 238; *Beck, bot. p.* 157. D. humilis, *Pers. syn.* 1. *p.* 214. D. Canadensis, *Willd. enum.* 1. *p.* 222; *Bigel. fl. Bost. p.* 69; *DC. prodr.* 4. *p.* 330; *Hook. fl. Bor.-Am.* 1. *p.* 281; *Darlingt. fl. Cest. p.* 157. D. lutea, *Pursh, fl.* 1. *p.* 162. Lonicera Diervilla, *Linn. sp.* 1. *p.* 175.

Stem 2 – 3 feet high; the branches smooth and somewhat quadrangular. Leaves 2 – 4 inches long, obtusely serrate, ciliate. Peduncles growing from the axils of the upper leaves and also terminal, mostly 3-flowered; the central flower sessile; lateral ones pedicelled. Bracteoles subulate, shorter than the ovary. Corolla about three-fourths of an inch long, greenish-yellow, pubescent externally, hairy inside. Stamens and style exserted. Capsule ovoid-oblong, contracted above into a sort of beak, often a little curved, crowned with the long and somewhat spreading calyx-segments; the placenta reaching almost to the dorsal suture, so as to give the appearance of 4 cells.

Rocky woods; rather common. *Fl.* June. *Fr.* September.

Subtribe 2. TRIOSTEÆ. *Fruit drupaceous; the endocarp bony. Testa of the seed membranaceous.*

5. TRIOSTEUM. *Linn.; Endl. gen.* 3338. *FEVER-ROOT.*

[From the Greek, *treis*, three, and *osteon*, a bone; the fruit containing three bony nucules.]

Calyx-tube ovoid; segments of the 5-parted limb linear-lanceolate, foliaceous, persistent. Corolla tubular, gibbous at the base; the limb somewhat equally 5-lobed. Stamens 5, included. Fruit rather dry, roundish-obovoid, crowned with the calyx-segments, containing 3 – 5 elliptical bony nucules. Embryo minute, oblong, in the axis of fleshy albumen.—Perennial, herbaceous, or rarely suffrutescent plants. Leaves lanceolate or oval, connate at the base. Flowers axillary and sessile, or nearly so.

1. TRIOSTEUM PERFOLIATUM, *Linn.* *Fever-wort. Horse Gentian.*

Stem glandularly hairy; leaves ovate or spatulate-ovate, acuminate, abruptly narrowed at the base, velvety-pubescent underneath, somewhat hairy above; axils 1 – 3-flowered; flowers

dark purple.— *Linn. sp.* 1. *p.* 176; *Pursh, fl.* 1. *p.* 162; *Bart. veg. mat. med. t.* 4; *Bigel. med. bot.* 1. *p.* 90. *t.* 9, *and fl. Bost. p.* 89; *Ell. sk.* 1. *p.* 269; *Torr. fl.* 1. *p.* 247; *Sweet, Brit. fl. gard.* (ser. 2) *t.* 45; *Beck, bot. p.* 157; *Darlingt. fl. Cest. p.* 159; *Torr. & Gr. fl. N. Am.* 2. *p.* 12. T. majus, *Michx. fl.* 1. *p.* 107. Triosteospermum, *Dill. hort. Elth. t.* 293. *f.* 378.

Root thick and fleshy, divided into several horizontal portions. Stem 2 – 4 feet high, thick, fistulous, simple. Leaves 4 – 8 inches long and 2 – 4 wide, sometimes sinuate on the margin, the long contracted base being often so narrow as to resemble a winged petiole. Flowers sessile, clustered in the axils of the middle leaves. Bracts linear. Corolla about three-fourths of an inch long, a little curved, of a dull purplish color, about the length of the calyx-segments, viscidly pubescent. Filaments bearded: anthers oblong. Style nearly as long as the corolla: stigma thickened, obscurely 3 – 5-lobed. Fruit half an inch long, pubescent, orange-colored. Nucules usually 3; the back strongly 3-ribbed.

Shady rocky places; rather common. *Fl.* May – July. *Fr.* September. The root is cathartic, emetic and diuretic. It has long been a popular medicine. In some places the plant is called *Wild Coffee*. See *Wood & Bache's U. S. Dispens. p.* 673.

TRIBE II. *SAMBUCEÆ. Kunth.*

Corolla regular, rotate, or rarely somewhat tubular. Stigmas 3 – 5, *nearly sessile. Endocarp of the fruit crustaceous or coriaceous. Testa of the seed membranaceous; the raphe occupying the inner side.*

6. SAMBUCUS. *Tourn.; Linn.; Endl. gen.* 3341. *ELDER.*

[From *sambuke*, the Greek name of a musical instrument, supposed to have been made of the wood of this plant.]

Limb of the calyx small, 5-cleft. Corolla rotate or urceolate, with 5 obtuse lobes. Stamens 5. Fruit baccate, pulpy, roundish: nucules (seeds of most authors) 3 (rarely 5), crustaceous, oblong, finely wrinkled, obtusely angled on the back, flattish on the face, each containing a suspended seed. — Shrubby perennial herbs, with a heavy odor. Leaves pinnate or 1 – 2-pinnately divided; the leaflets or divisions serrate or incised. Cymes compound, thyrsoid or fastigiate. Flowers white or sometimes reddish.

1. SAMBUCUS PUBENS, *Michx.* *Red-berried Elder.*

Stem shrubby; leaves pinnately 5 – 7-foliolate; leaflets ovate-lanceolate, acuminate, the lower surface and the petioles pubescent; thyrsus ovoid or pyramidal, rather loose.—*Michx. fl.* 1. *p.* 181; *Torr. fl.* 1. *p.* 321; *DC. prodr.* 4. *p.* 323; *Torr. & Gr. fl. N. Am.* 2. *p.* 13. S. pubescens, *Pers. syn.* 1. *p.* 328; *Pursh, fl.* 1. *p.* 204; *Ell. sk.* 1. *p.* 368; *Bigel. fl. Bost. p.* 118. S. racemosa, *Hook. fl. Bor.-Am.* 1. *p.* 279.

var. *leucocarpa*: berries white. *Torr. & Gr. l. c.*

Stem 2 – 10 – 18 feet high, sometimes 3 – 4 inches in diameter at the base. Leaves very pubescent when young, nearly smooth on the upper surface when old : leaflets commonly 5, each 3 – 5 inches long, conspicuously acuminate and sharply serrate. Thyrsus about three inches long. Berries the size of a small pea, scarlet or rarely white.

Rocky banks, and in dry woods. *Fl.* May. *Fr.* June. Very near *S. racemosa* of Europe. The white-berried variety occurs on the Catskill Mountains (*Mr. J. Hogg*).

2. SAMBUCUS CANADENSIS, *Linn.* *Common Elder.*

Stem suffrutescent ; leaves pinnately 5 – 11-foliolate, often with foliaceous stipelles, sometimes imperfectly bipinnate ; leaflets oblong or oval, acute, more or less pubescent underneath ; cymes spreading, 5 – 7-parted. — *Linn. sp.* 1. *p.* 269 ; *Michx. fl.* 1. *p.* 281 ; *Pursh, fl.* 1. *p.* 203 ; *Ell. sk.* 1. *p.* 368 ; *Torr. fl.* 1. *p.* 321 ; *Bigel. fl. Bost. p.* 117 ; *DC. prodr.* 4. *p.* 322 ; *Hook. fl. Bor.-Am.* 1. *p.* 279 ; *Beck, bot. p.* 155 ; *Darlingt. fl. Cest. p.* 205 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 13.

Stem 6 – 10 feet high, stout, filled with pith ; the branches straight, swelled at the joints. Lower leaves sometimes bipinnate ; upper ones usually with from 5 to 7 leaflets, and often with several large foliaceous stipelles : leaflets with short stalks, nearly smooth above ; when young, velvety-pubescent underneath, but at length smoothish. Cymes 5 – 8 inches or more in diameter. Flowers of a sickly odor. Teeth of the calyx acute. Corolla white, sometimes 6 – 7-lobed. Berries dark purple or nearly black when ripe ; the juice deep crimson.

Thickets, banks of streams, and along fences ; very common. *Fl.* June – August. *Fr.* August – September. This plant, like the *S. nigra* of Europe, which it greatly resembles, is a popular medicine. The inner bark is used in making an ointment for sores, and is likewise employed as a purgative. An infusion of the flowers is thought to be a diaphoretic. The berries are aperient and sudorific. See *Wood & Bache's U. S. Dispens. p.* 118.

7. VIBURNUM. *Linn. ; Endl. gen.* 3340. *GUELDER ROSE, &c.*

[An ancient Latin name, of uncertain origin.]

Limb of the calyx 5-toothed. Corolla rotate or somewhat campanulate, 5-lobed. Stamens 5. Ovary 3-celled ; one of the cells containing a single suspended ovule, the others abortive : stigmas 3, sessile. Fruit drupaceous, 1-celled, 1-seeded, with a thin pulp ; the endocarp (seeds of most authors) crustaceous, mostly compressed. Seed conformed to the cavity of the endocarp ; the testa membranaceous. — Shrubs or small trees, with petiolate, entire or lobed leaves. Flowers white, in terminal cymes, rather showy ; the marginal ones sometimes sterile and very large.

§ 1. LENTAGO, *DC.* *Flowers all similar and fertile: corolla rotate.*

* *Leaves undivided.*

1. VIBURNUM NUDUM, *Linn.* *Swamp Viburnum.*

Leaves somewhat coriaceous, oval or oblong, obtuse, dotted underneath with brownish scales (particularly on the veins), smooth above, the margin crenulate or entire: petiole somewhat margined; cymes pedunculate; fruit ovoid.— *Torr. & Gr. fl. N. Am.* 2. *p.* 14.

var. 1. *Claytoni:* leaves broadly oval, oblong-obovate or oblong, somewhat shining above, obtuse or slightly acuminate, entire or obscurely crenulate, slightly revolute on the margin, the veins rather prominent underneath; cyme on a long peduncle. *Torr. & Gr. l. c.* V. nudum, *Linn. sp.* 1. *p.* 268; *Michx. fl.* 1. *p.* 178; *Bot. mag. t.* 2281; *Ell. sk.* 1. *p.* 375; *Torr. fl.* 1. *p.* 319; *Bigel. fl. Bost. p.* 116; *DC. prodr.* 4. *p.* 325; *Beck, bot. p.* 156; *Darlingt. fl. Cest. p.* 203.

var. 2. *cassinoides:* leaves ovate, slightly obovate or oblong, dull above, often abruptly acuminate, the margins crenate-serrate or undulate, the veins not prominent underneath; cyme on a short peduncle. *Torr. & Gr. l. c.* V. cassinoides, *Linn. sp. ed.* 2. *p.* 384; *Pursh, fl.* 1. *p.* 202; *DC. prodr.* 4. *p.* 326, not of *Michx.* V. nudum, *Hook. fl. Bor.-Am.* 1. *p.* 279. V. pyrifolium, *Pursh, l. c.; Torr. fl.* 1. *p.* 318; *Bigel. l. c.; Beck, bot. p.* 156, not of *DC. &c.* V. squamatum, *Willd. enum.* 1. *p.* 327.

Stem 6 – 12 feet high, slender, branching. Leaves 2 – 4 inches long, thickly sprinkled with minute bran-like scales underneath, sparingly dotted above; mostly entire on the margin, attenuate at the base, and rather obtuse, in the first variety; more or less crenate-serrate (sometimes rather acutely), acute but not attenuate at the base, and rather conspicuously acuminate, in the second. Cyme 2 – 2½ inches in diameter; the peduncle often two inches long in the former *var.*, less than an inch and often nearly sessile in the latter. Fruit about one-third of an inch long, ovoid, abruptly pointed, slightly compressed, dark blue, with a glaucous bloom. Nucleus or stone much compressed, slightly convex on one side and a shallow groove on the other.

Swamps: the first variety common in the northern and western parts of the State, but not found south of Hudson; the other in the neighborhood of New-York, and I think also in the cedar swamps of Long Island. *Fl.* May – June. *Fr.* September.

Many botanists consider the *V. cassinoides*, Linn. (pyrifolium, *Pursh, &c.*), a distinct species from *V. nudum*, but there are intermediate forms that seem to connect them.

2. VIBURNUM PRUNIFOLIUM, *Linn.* *Black Haw. Sloe.*

Leaves roundish-oval, broadly ovate or obovate, coriaceo-membranaceous, obtuse or with a slight abrupt point, finely serrate with appressed or uncinate teeth, smooth; petiole with a very narrow and even margin; cymes sessile or nearly so; fruit oblong-ovoid.— *Linn. sp.* 1. *p.* 268; *Michx. fl.* 1. *p.* 178; *Pursh, fl.* 1. *p.* 201; "*Duham. arb.* (ed. nov.) 2. *t.* 38; *Wats.*

dendr. Brit. t. 23 ; *Guimp. Otto & Hayne, holz. t.* 101 ;" *Ell. sk.* 1. *p.* 365 ; *Torr. fl.* 1. *p.* 318 ; *Hook. fl. Bor.-Am.* 1. *p.* 279 ; *Beck, bot. p.* 156 ; *Darlingt. fl. Cest. p.* 202 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 14. V. pyrifolium, *Poir. dict.* 5. *p.* 658 ; *DC. prodr.* 4. *p.* 325.

A shrub or small tree (8 – 15 feet high), with numerous spreading branches, and short lateral spurs which are sometimes almost thorny. Leaves usually 1 – 2 inches long and rounded, smooth on both sides : petiole about half an inch long. Cymes about 3 inches in diameter, terminating the short lateral branches or spurs ; the primary divisions usually about 4. Fruit one-third of an inch long, bluish-black and slightly glaucous when mature ; the nucleus much compressed.

Woods and thickets ; rare north and west of the Highlands, but very common in the neighborhood of New-York. *Fl.* May – June. *Fr.* September – October.

3. VIBURNUM LENTAGO, *Linn.* *Sweet Viburnum.*

Leaves ovate, conspicuously acuminate, finely serrate with sharp slightly uncinate teeth, rather thin, smooth, the midrib and undulate margin of the petiole dotted with minute brown scales when young ; cymes sessile ; fruit oval.— *Linn. sp.* 1. *p.* 268 ; *Michx. fl.* 1. *p.* 178 ; *Ell. sk.* 1. *p.* 365 ; *Torr. fl.* 1. *p.* 318 ; *Bigel. fl. Bost. p.* 116 ; *Wats. dendr. Brit. t.* 21 ; *DC. prodr.* 4. *p.* 325 ; *Hook. fl. Bor.-Am.* 1. *p.* 279 ; *Beck, bot. p.* 156 ; *Darlingt. fl. Cest. p.* 203 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 15.

A tree 15 – 20 feet high. Leaves 2 – 3 inches long ; the upper ones usually broadly ovate ; lower ones narrower, acute at the base, or sometimes slightly cordate : the petiole 6 – 8 lines long, distinctly margined. Cymes often 4 inches in diameter. Fruit rather larger than in the preceding species, bluish-black, with a glaucous bloom ; the pulp thin and sweetish : nucleus nearly flat on both sides.

Woods and banks of streams, commonly in rich soils ; common, particularly in the interior of the State. *Fl.* May. *Fr.* October. The fruit is rather palatable, especially after having been frozen.

4. VIBURNUM DENTATUM, *Linn.* *Arrow-wood.*

Leaves roundish-ovate, coarsely and sharply serrate-toothed, mostly acute, appearing plicate from the strong and nearly simple straight veins, smooth and somewhat shining above, pale underneath, with tufts of villous hairs in the axils of the veins ; cymes pedunculate, nearly smooth ; fruit small, globose-ovoid ; the nucleus deeply grooved or excavated on one side, and obtusely ridged on the other.—*Linn. sp.* 1. *p.* 268 ; *Jacq. hort. Vind.* 1. *t.* 36 ; *Pursh, fl.* 1. *p.* 202 ; *Torr. fl.* 1. *p.* 219 ; *Bigel. fl. Bost. p.* 116 ; *DC. prodr.* 4. *p.* 326 ; *Hook. fl. Bor.-Am.* 1. *p.* 280 ; *Beck, bot. p.* 156 ; *Darlingt. fl. Cest. p.* 203 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 16. V. dentatum, *var.* lucidum, *Ait. Kew.* (ed. 1.) 1. *p.* 372. V. dentatum, *var.* glabellum. *Michx. fl.* 1. *p.* 179 (partly).

A shrub 6 – 8 feet high, with obtusely angular smooth branches; the young shoots slender and very straight. Leaves about 2 inches long, and of nearly the same breadth, often more or less cordate; the teeth slightly ciliate with fine hairs: petioles half an inch long. Cymes on long naked peduncles. Calyx-teeth obtuse. Fruit the size of a small pea, nearly black when ripe; the pulp thin. Transverse section of the nucleus reniform; the sides somewhat incurved.

Low grounds and borders of rivers; common. *Fl.* June. *Fr.* September.

5. VIBURNUM PUBESCENS, *Pursh.* (Plate XLIII.) *Pubescent Viburnum.*

Leaves ovate or ovate-oblong, acuminate, with very short petioles, coarsely dentate-serrate, appearing plicate from the straight sparingly branched veins, smoothish above, pubescent or villous-tomentose underneath; cyme pedunculate, nearly smooth; fruit oblong; the much compressed nucleus slightly 2-grooved on one side, and obtusely ridged on the other.—*Pursh, fl.* 1. *p.* 202; *Torr. fl.* 1. *p.* 320; *DC. prodr.* 4. *p.* 326; *Hook. fl. Bor.-Am.* 1. *p.* 280; *Beck, bot. p.* 156; *Torr. & Gr. fl. N. Am.* 2. *p.* 16. V. dentatum, *var.* pubescens, *Ait. Kew.* (ed. 1.) 1. *p.* 168. V. dentatum, *var.* semitomentosum, *Michx. fl.* 1. *p.* 179 (partly). V. villosum, *Raf. in med. repos.* (hex. 2) 5. *p.* 361 (not of *Swartz*). V. tomentosum, *Raf. l. c.* V. Rafinesquianum, *Rœm. & Schult. syst.* 6. *p.* 630.

A shrub 2 – 3 feet high, with grayish slender angular branches. Leaves about 2 inches long, often cordate at the base, sometimes only pubescent on the veins underneath, but usually clothed with a soft almost velvety pubescence. Peduncle at first about an inch long; of the fruit nearly twice as long. Calyx-teeth acute, purplish. Corolla larger than in the preceding species. Fruit about one-fourth of an inch long, reddish, with a thin pulp.

Dry rocky banks, and in bushy places. Highlands of New-York; about Albany and Troy, and in the northern and western counties; rather rare. *Fl.* June. *Fr.* August.

** *Leaves lobed or incised.*

6. VIBURNUM ACERIFOLIUM, *Linn.* *Maple-leaved Arrow-wood.*

Leaves roundish or broadly ovate, mostly somewhat cordate, 3-lobed, 3-ribbed from the base, coarsely and unequally toothed, velvety-pubescent and woolly in the axils underneath; the lobes diverging and mostly acuminate; petioles (and young branchlets) pubescent, furnished near the base with two setaceous stipule-like appendages; cymes pedunculate; fruit oval, compressed. — *Linn. sp.* 1. *p.* 268; *Vent. hort. Cels. t.* 272; *Michx. fl.* 1. *p.* 180; *Pursh, fl.* 1. *p.* 203; *Ell. sk.* 1. *p.* 264; *Wats. dendr. Brit.* 1. *t.* 118; *Torr. fl.* 1. *p.* 320; *Bigel. fl. Bost. p.* 116; *Hook. fl. Bor.-Am.* 1. *p.* 280 (partly); *Beck, bot. p.* 156; *Darlingt. fl. Cest. p.* 204; *Torr. & Gr. fl. N. Am.* 2. *p.* 17.

A shrub 3 – 5 feet high, with smooth, straight and slender branches; the smaller twigs somewhat quadrangular. Leaves 3 – 5 inches in diameter, nearly smooth or with short scattered

hairs above, stellately and softly pubescent underneath; the petioles 1 – 1½ inch long. Peduncle about two inches long. Cyme rather loose. Calyx-teeth obtuse. Anthers deep rose-color. Drupes nearly black when ripe, 3 – 4 lines long; the pulp thin: nucleus with two obtuse ridges on one side, and two corresponding shallow grooves on the other.

Dry open woods; very common. *Fl.* June. *Fr.* September. In the western part of the State, this species is sometimes known by the name of *Dogmackie.*

7. VIBURNUM PAUCIFLORUM, *Pylaie.* *Mountain Bush-Cranberry.*

Branches and petioles smooth, or nearly so; leaves roundish, seldom subcordate, slightly 3-lobed or incised at the summit, mostly 5-nerved from the base, unequally toothed-serrate, sparingly pubescent on the veins underneath; petioles destitute of glands and stipuliform appendages; cymes small and simple, pedunculate, terminating the very short lateral branches; filaments much shorter than the corolla.— *Torr. & Gr. fl. N. Am.* 2. *p.* 17. V. Oxycoccus, *var.* eradiatum, *Oakes in Hovey's hort. mag. May*, 1841.

A shrub 2 – 4 feet high. Leaves 1½ – 2½ inches in diameter, a little woolly in the axils of the veins, sometimes scarcely at all lobed. Cymes about an inch in diameter. Anthers on very short filaments, not exserted beyond the tube of the corolla. Fruit (rather immature) roundish-ovoid, compressed, red: nucleus much compressed.

Mountains of Essex county. *Fl.* July 1st (*Dr. Knieskern*). *Fr.* (immature) August. Mr. Oakes is confident that this plant is only an alpine form of *V. Oxycoccus* (*Opulus*); and it is certainly more nearly allied to that species than to *V. acerifolium.* It seems, however, to be constant in its characters.

§ 2. OPULUS, Tourn. *Exterior flowers of the corymb much larger than the others, and neutral; their pedicels elongated.*

8. VIBURNUM OPULUS, *Linn.* *Bush Cranberry*, or *High Cranberry.*

Nearly smooth; leaves 3-lobed, 3-ribbed from the base, the lobes acutely toothed; petioles glandular above, and often with stipule-like appendages at the base; cymes pedunculate; fruit ovoid-globose, red.— *Linn. sp.* 1. *p.* 268; *Engl. bot. t.* 322; *Torr. & Gr. fl. N. Am.* 2. *p.* 18.

var. *Americana:* leaves remotely and rather obtusely toothed. *Ait. Kew.* (ed. 1.) 1. *p.* 373; *Torr. & Gr. l. c.* V. trilobum, *Marsh. arbust. p.* 162. V. Opulus, β. Pimina, *and* γ. edule, *Michx. fl.* 1. *p.* 180. V. opuloides, *Muhl. cat. p.* 32. V. Oxycoccus *and* edule, *Pursh, fl.* 1. *p.* 203; *Torr. fl.* 1. *p.* 320; *DC. prodr.* 4. *p.* 328; *Hook. fl. Bor.-Am.* 1. *p.* 281; *Beck, bot. p.* 157; *Audubon, birds of Amer. t.* 148.

A shrub 3 – 10 feet high, with smooth gray spreading branches. Leaves 3 – 5 inches in diameter, the lobes often somewhat falcate, nearly smooth above, sparsely hairy underneath: petiole about an inch long, with 4 – 6 glands on the upper part: stipular appendages one or

two pairs at or near the base of the petiole, subulate, often tipped with a gland. Cyme 3 – 4 inches in diameter ; the sterile flowers few or numerous, nearly an inch in diameter. Calyx-teeth nearly obsolete. Drupes half an inch long, juicy, intensely acid and slightly bitter, translucent when dry.

Swamps and banks of streams : rather common in the western part of the State, particularly along the banks of the Mohawk ; rare elsewhere. *Fl.* May – June. *Fr.* End of September. The acid fruit is sometimes used as a substitute for cranberries. The common *Snowball Bush* of our gardens is a variety of this species, with the flowers all sterile. The two plants, in the wild state, do not differ sufficiently to be considered separate species.

9. VIBURNUM LANTANOIDES, *Michx.* *Hobble-bush.*

Leaves ovate-orbicular, cordate, with a short abrupt acumination, finely and unequally or doubly serrate, membranaceous ; the lower surface, and especially the prominent veins and petioles, tomentose with a stellate rusty pubescence ; cymes sessile, the exterior flowers sterile and very large ; fruit ovoid, the nucleus with a longitudinal groove on each side. — *Michx. fl.* 1. *p.* 179 ; *Pursh, fl.* 1. *p.* 202 ; *Torr. fl.* 1. *p.* 319 ; *Bigel. fl. Bost. p.* 117 ; *DC. prodr.* 4. *p.* 326 ; *Hook. fl. Bor.-Am.* 1. *p.* 280 ; *Beck, bot. p.* 156 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 18. V. Lantana, β. grandifolium, *Ait. Kew.* (ed. 1.) 1. *p.* 373. V. Lantana, β. Canadense, *Pers. syn.* 1. *p.* 327. V. grandifolium, *Smith, in Rees, cycl. no.* 14.

A low shrub, with long flexuous reddish and often procumbent branches. Leaves 3 – 6 inches long, and of nearly the same breadth ; when young, clothed (as well as the cyme) with a copious rusty pulverulent pubescence, much of which at length disappears, beautifully veined underneath : petioles often with small stipular appendages at the base. Cymes 4 – 5 inches in diameter ; the sterile flowers usually numerous, very large. Stamens about the length of the lobes of the corolla. Drupes nearly black when ripe.

Shady primitive forests ; common in the northern and western parts of the State. *Fl.* May. *Fr.* September. The long prostrate branches of this shrub are often an impediment to the pedestrian in woods where it abounds : hence its common name.

ORDER LII. RUBIACEÆ. *Juss.* THE MADDER TRIBE.

Tube of the calyx adherent to the ovary, or rarely partly or almost completely free; the limb mostly 4 – 5-cleft or toothed, rarely obsolete. Corolla with as many lobes as there are divisions to the calyx. Stamens as many as the lobes of the corolla, and alternate with them. Fruit various. Embryo straight or slightly curved, in the axis or at the extremity of horny albumen. — Trees, shrubs or often herbs; the leaves either in whorls, or opposite and furnished with stipules. Flowers regular.

Suborder I. STELLATÆ. *R. Brown.*

Leaves in whorls; all but one pair generally supposed to take the place of stipules, and only to be distinguished from true leaves by their never bearing buds in their axils. Æstivation of the corolla valvate. Ovary wholly coherent with the tube of the calyx. Fruit consisting of two united indehiscent (dry or baccate) one-seeded carpels.— Herbs or rarely suffrutescent plants.

1. GALIUM. *Linn.; Endl. gen.* 3110. *BEDSTRAW. CLEAVERS.*

[Named from the Greek, *gala*, milk; one of the species having been used to curdle milk.]

Calyx-tube ovate-globose or oblong; the limb obsolete. Corolla rotate, 4- (rarely 3-) parted. Stamens as many as the lobes of the corolla, short. Styles 2, united at the base: stigmas globose. Fruit didymous, dry or sometimes fleshy, separable when ripe into 2 indehiscent globose one-seeded carpels. Albumen horny. — Herbaceous or very rarely suffrutescent plants, with square stems; the roots frequently containing a coloring matter. Flowers small, axillary or terminal, in small cymes (which are often paniculate) or rarely solitary.

§ 1. APARINE, *DC.* *Root annual.*

1. GALIUM APARINE. *Common Cleavers*, or *Goose-grass.*

Stem weak, branching, retrorsely aculeate-hispid, hairy about the joints; leaves mostly eight in a whorl, linear-oblanceolate, mucronate, the margin and keel aculeolate; peduncles elongated, axillary, 1 – 2-flowered; fruit large, very hispid with hooked prickles. — *Linn. sp.* 1. *p.* 108; *Engl. bot.* 816; *Pursh, fl.* 1. *p.* 103; *Torr. fl.* 1. *p.* 166; *Bigel. fl. Bost. p.* 57; *DC. prodr.* 4. *p.* 608; *Hook. fl. Bor.-Am.* 1. *p.* 290; *Beck, bot. p.* 162; *Darlingt. fl. Cest. p.* 100; *Torr. & Gr. fl. N. Am.* 2. *p.* 20.

Stem 4 – 8 feet long, trailing or supported by other plants, with numerous short branches. Whorls rather remote; the leaves (sometimes only 6) 1 – 2 inches long and 2 – 3 lines wide, tapering to the base. Flowers very small, white. Fruit larger than in most other species of the genus, densely clothed with short white hooked hairs.

Shady thickets, margins of woods and along fences: common in the neighborhood of New-York; rather rare in the interior of the State. *Fl.* May. Perhaps introduced from Europe.

§ 2. EUGALIUM, *DC.* *Root perennial: peduncles 3 – many-flowered.*

* *Flowers white or sometimes greenish: peduncles axillary or terminal, few-flowered, occasionally somewhat clustered at the extremity of the branches.*

2. GALIUM TRIFIDUM, *Linn.* *Small Bedstraw.*

Stem flaccid, decumbent or ascending, branching, the angles retrorsely scabrous; leaves in whorls of 4 – 6 (the lower frequently 5 or 6, the upper 4 or 5), linear or oblanceolate, the margin and midrib minutely (often retrorsely) aculeolate-scabrous; peduncles axillary and terminal, 1 – 3-flowered; lobes of the corolla and stamens often 3; fruit smooth and even.— *Linn. sp.* 1. *p.* 105; *Fl. Dan. t.* 48; *Pursh, fl.* 1. *p.* 103; *Torr. fl.* 1. *p.* 165; *Bigel. fl. Bost. p.* 56; *DC. prodr.* 4. *p.* 597; *Beck, bot. p.* 161; *Darlingt. fl. Cest. p.* 99; *Torr. & Gr. fl. N. Am.* 2. *p.* 22. G. Claytoni, *Michx. fl.* 1. *p.* 78; *Hook. fl. Bor.-Am.* 1. *p.* 288.

var. *tinctorium:* stem (usually stouter) scarcely or not at all rough; lobes of the corolla and stamens mostly 4. *Torr. & Gr. l. c.* G. tinctorium, *Linn. l. c.; Pursh, l. c.; Torr. l. c.; DC. l. c.; Darlingt. l. c. p.* 100.

var. *latifolium:* stem diffuse, not rough; leaves elliptical or oblong, the margins and midrib manifestly ciliolate-scabrous. *Torr. fl.* 1. *p.* 165; *Torr. & Gr. l. c.* G. obtusum, *Bigel. fl. Bost. p.* 55; *Beck, bot. p.* 162.

Stem sometimes only a few inches high, but usually a foot or eighteen inches, at first erect, but finally diffuse and assurgent. Leaves often only four in a whorl, about three-fourths of an inch long, variable in breadth, usually very narrow, but in the second variety sometimes 3 – 4 lines wide. Pedicels of the fruit slender. Fruit very small.

Swamps and moist shady woods. *Fl.* June – July. *Fr.* August – September. Indigenous also to the north of Europe. The two varieties have been regarded as distinct species from *G. trifidum* by many botanists, but they are all connected by intermediate forms, so that it is impossible to separate them by any constant marks. All our varieties usually turn black in drying.

3. GALIUM ASPRELLUM, *Michx.* *Rough Bedstraw.*

Stem diffuse, much branched, the angles very rough with minute and rigid retrorse prickles; leaves 6 (those of the branchlets often 4 – 5) in a whorl, elliptical or lanceolate, mucronate or acuminate, the margins and midrib aculeolate-hispid; branches 2 – 3-forked; pedicels filiform,

divaricate; fruit smooth or somewhat hispid. — *Michx. fl.* 1. *p.* 78; *Pursh, fl.* 1. *p.* 103; *Torr. fl.* 1. *p.* 166; *Bigel. fl. Bost. p.* 54; *DC. prodr.* 4. *p.* 598; *Beck, bot. p.* 162; *Darlingt. fl. Cest. p.* 100. G. Pennsylvanicum, *Muhl. cat. p.* 15. G. micranthum, *Pursh, fl.* 1. *p.* 103?

Stem flaccid, 4 – 8 feet long, usually supported on other plants, to which it adheres by its numerous little hooked prickles, very much branched above. Leaves 6 – 8 lines long, tapering at the base; the lower ones rather obtuse, with a short mucronate tip; the upper ones acuminate and cuspidate. Flowers minute, but very numerous; the filiform peduncles twice 2 – 3-forked. Segments of the corolla ovate, acute. Fruit usually smooth, but sometimes with a very few hooked prickles; one of the carpels often abortive.

Wet thickets; not rare. *Fl.* July – August. The plant usually turns black in drying.

4. GALIUM TRIFLORUM, *Michx.* *Sweet-scented Bedstraw.*

Stem flaccid, reclining or procumbent, retrorsely somewhat aculeate-scabrous or slightly hispid on the angles, shining; leaves 6 in a whorl, narrowly elliptical or elliptical-lanceolate, acuminate-cuspidate, 1-nerved, veiny, smooth, the margins and sometimes also the midrib minutely ciliolate-hispid or scabrous; peduncles axillary and terminal, mostly 3-flowered at the extremity; the flowers all pedicellate; segments of the corolla cuspidate; fruit hispid with hooked hairs. — *Michx. fl.* 1. *p.* 80; *Willd. hort. Berol. t.* 66; *Pursh, fl.* 1. *p.* 104; *Torr. fl.* 1. *p.* 167; *Bigel. fl. Bost. p.* 56; *DC. prodr.* 4. *p.* 601; *Hook. fl. Bor.-Am.* 1. *p.* 290; *Beck, bot. p.* 162; *Darlingt. fl. Cest. p.* 101; *Torr. & Gr. fl. N. Am.* 2. *p.* 23. G. cuspidatum, *Muhl. cat. p.* 15; *Ell. sk.* 1. *p.* 197; *DC. l. c.* G. brachiatum, *Pursh, fl.* 1. *p.* 103. G. suaveolens, *Wahl. fl. Lapp. p.* 48, G. Pennsylvanicum, *Bart. compend. fl. Phil.* 1. *p.* 83, not of *Muhl.*

Stem 1 – 4 feet long, generally procumbent, with a few short diverging branches, sometimes quite smooth, but commonly a little rough. Leaves from half an inch to an inch and a quarter in length, thin and membranaceous; the midrib very prominent. Flowers rather few; the pedicels widely divaricate. Corolla greenish-white. Fruit densely hispid with white hairs.

Moist woods and shady thickets; common. *Fl.* July. *Fr.* September. The plant exhales a vanilla-like odor in drying.

** *Flowers dull purple or brownish: peduncles axillary and terminal, usually twice or thrice forked or 3-parted.*

5. GALIUM PILOSUM, *Ait.* *Hairy Bedstraw.*

Stem ascending, nearly simple, hairy; leaves 4 in a whorl, oval or ovate, mucronate, indistinctly 3-nerved at the base, punctate with pellucid dots, hairy and ciliate; peduncles usually twice or thrice 2-forked, or trichotomous; fruit densely hispid with hooked prickles. —*Ait. Kew.* (ed. 1.) 1. *p.* 145; *Pursh, fl.* 1. *p.* 104; *Ell. sk.* 1. *p.* 196; *Torr. fl.* 1. *p.* 167; *Beck, bot. p.* 163; *Darlingt. fl. Cest. p.* 101; *Torr. & Gr. fl. N. Am.* 2. *p.* 24. G. puncticulosum, *β.* pilosum, *DC. prodr.* 4. *p.* 601.

Stems 2 feet high, often several from one root, more or less pubescent, particularly on the angles. Leaves 6 – 8 lines long, and about 3 lines wide. Flowering branches or peduncles twice or thrice divided, with a whorl of small leaves as the division. Corolla brownish-purple; the lobes acuminate. Fruit middle-sized, densely clothed with white bristles.

Dry woods and copses; not rare. *Fl.* June. *Fr.* August.

6. GALIUM CIRCÆZANS, *Michx.* *Wild Liquorice.*

Stems usually several from one root, or branching from the base, erect or ascending; leaves 4 in a whorl, oval or ovate-oblong, mostly obtuse, 3-nerved, somewhat pubescent, the margin and nerves ciliate; peduncles terminal and in the axils of the uppermost leaves, once or twice 2 – 3-forked, divaricate in fruit; the flowers remote, deflexed, on very short lateral pedicels; fruit densely hispid with hooked bristles. — *Michx. fl.* 1. *p.* 80; *Pursh, fl.* 1. *p.* 104; *Ell. sk.* 1. *p.* 197; *Torr. fl.* 1. *p.* 168 (excl. syn. *Gron.*); *Bigel. fl. Bost. p.* 55; *DC. prodr.* 4. *p.* 601; *Beck, bot. p.* 163; *Darlingt. fl. Cest. p.* 102; *Torr. & Gr. fl. N. Am.* 2. *p.* 24. G. brachiatum, *Muhl. cat. p.* 15, not of *Pursh.* G. boreale, *Walt. fl. Car. p.* 257. G. circæoides, *Rœm. & Schult. syst.* 3. *p.* 256.

var. *lanceolatum:* leaves lanceolate or often ovate-lanceolate, rather acute. *Torr. cat. pl. N. York, p.* 23; *DC. l. c.; Torr. & Gr. l. c.* G. lanceolatum, *Torr. fl.* 1. *p.* 168; *Hook. fl. Bor.-Am.* 1. *p.* 280; *Beck, bot. p.* 103; *Darlingt. l. c.* G. Torreyi, *Bigel. l. c. p.* 56.

Stems 10 – 18 inches high, shining, a little pubescent towards the summit, usually nearly or quite smooth below. Leaves 1 – 1½ (and in var. *lanceolatum* often more than 2) inches long, more or less pubescent, sometimes hairy on both sides (particularly on the veins), marked on the under surface with indistinct scattered roundish and linear dots. Terminal peduncle 3-forked to the base; the divisions either simple or two-forked, with several somewhat secund flowers on each branch: a very small bracteal leaf at the base of each short pedicel. Corolla usually brownish-purple, rarely cream-colored; the lobes acuminate-cuspidate. Fruit clothed with dense white bristles.

Fertile woods; common. *Fl.* June – July. *Fr.* August – September. The root is slightly sweetish in both varieties. The two forms seem to pass into each other, but in their extreme states they certainly appear very different.

**** Flowers white; the peduncles disposed in a terminal panicle.*

7. GALIUM BOREALE, *Linn.* *Northern Bedstraw.*

Stem straight, erect, smoothish, paniculately branched above; leaves 4 in a whorl, linear-lanceolate, strongly 3-nerved, rather obtuse; panicle elongated, somewhat pyramidal; fruit hispid with short scarcely uncinate hairs, or sometimes smooth.—*Linn. sp.* 1. *p.* 108; *Pursh, fl.* 1. *p.* 104; *Torr. fl.* 1. *p.* 169; *Hook. fl. Bor.-Am.* 1. *p.* 289; *Darlingt. fl. Cest. p.* 103; *Torr. & Gr. fl. N. Am.* 2. *p.* 25. G. Bermudianum, *Muhl. cat. p.* 15. G. strictum, *Torr. cat. pl. N. York, p.* 23. G. septentrionale, *Rœm. & Schult. syst.* 3. *p.* 253; *Bigel. fl. Bost. p.* 53; *DC. prodr.* 4. *p.* 601; *Beck, bot. p.* 163.

Whole plant somewhat glaucous. Stem 1½ – 2 feet high, usually smooth and shining, or only slightly rough on the angles. Leaves of the stem about an inch and a quarter long; of the branches scarcely half as long, 2 – 4 lines wide, when dry a little revolute on the margin, which is slightly scabrous, as is also the midrib. Flowers numerous and rather crowded. Lobes of the corolla acute. Fruit rather small, usually a little hispid.

Dry woods and rocky banks of rivers; rather common in the northern and western counties; rare in the southern part of the State. *Fl.* July – August.

Suborder II. CINCHONEÆ. *Torr. & Gr.*

Leaves opposite or very rarely verticillate. Stipules one or two on each side between the petioles (interpetiolar), often united with each other or with the petioles, or with both so as to form a sheath. Æstivation of the corolla valvate, imbricated or contorted. Ovary coherent with the tube of the calyx, or very rarely with the upper portion free. — Trees or shrubs, very rarely herbs.

TRIBE I. *SPERMACOCEÆ. Cham. & Schlecht.*

Fruit dry or scarcely fleshy, composed of two (rarely three or four) 1-seeded carpels, which are variously combined; sometimes separating and indehiscent, or variously dehiscent, but never loculicidal. Albumen fleshy and somewhat horny. Æstivation of the corolla usually valvate.— Herbs or shrubs. Stipules membranaceous at the base, usually with several bristles at the apex.

2. CEPHALANTHUS. *Linn.; Endl. gen.* 3138. *BUTTON-BUSH.*

[From the Greek, *kephale*, a head, and *anthos*, a flower; the flowers growing in heads.]

Calyx-tube obpyramidal; the limb 4-toothed. Corolla tubular, slender; the lobes of the 4-cleft limb erect, imbricate in æstivation. Stamens 4, scarcely exserted. Style filiform, much exserted: stigma clavate-capitate. Fruit inversely pyramidal, coriaceous, 2 – 4-celled, separating from the base to the summit into 2 – 4 closed 1-seeded portions. Seeds pendulous, conformed to the cell, crowned with a kind of corky arillus. Embryo straight, in the axis of somewhat cartilaginous albumen: cotyledons oblong, foliaceous: radicle slender.— Shrubs, with oval or lanceolate, opposite or ternate leaves. Flowers white, in dense globose heads.

1. CEPHALANTHUS OCCIDENTALIS, *Linn.* *Butter-bush*, or *Pond-Dogwood.*

Leaves opposite and ternate, ovate or oval-oblong, acuminate, distinctly petioled, usually smooth; peduncles longer than the heads, usually ternate at the extremity of the branches.—

Michx. fl. 1. *p.* 87; *Duham. arb. t.* 54; *Schk. handb. t.* 21, *and t.* 5 *&* 6. *fr.*; *Pursh, fl.* 1. *p.* 114; *Ell. sk.* 1. *p.* 186; *Torr. fl.* 1. *p.* 164; *Bart. fl. Am. Sept.* 3. *t.* 91; *Bigel. fl. Bost. p.* 51; *Beck, bot. p.* 161; *Darlingt. fl. Cest. p.* 98; *Torr. & Gr. fl. N. Am.* 2. *p.* 31.

A shrub 3 – 8 feet high, with opposite branches. Leaves 3 – 5 inches long and 1 – 2 inches wide, opposite and ternate often on the same branch: petiole about an inch long. Stipules small, ovate, often serrate or toothed; sometimes united. Heads of flowers (exclusive of the exserted styles) about an inch in diameter, on peduncles an inch and a half long. Flowers sessile, inserted on a globose hairy receptacle. Calyx-tube produced a little above the ovary; lobes ovate. Corolla tapering downward into a long funnel-form tube; the lobes obtuse. Style nearly twice as long as the corolla.

Borders of ponds and rivers, and in swamps; common. *Fl.* July – August. *Fr.* September.

TRIBE II. *GUETTARDEÆ. Kunth.*

Fruit drupaceous, 2 – 8-celled, or containing 2 – 8 one-seeded nucules. Seeds somewhat terete, elongated, usually erect. Albumen mostly fleshy. Æstivation of the corolla usually contorted or valvate. — Small trees, shrubs, or very rarely herbs. Stipules between the petioles.

3. MITCHELLA. *Linn.*; *Lam. ill. t.* 63; *Endl. gen.* 3188. *PARTRIDGE-BERRY.*

[In honor of Dr. JOHN MITCHELL, a botanist of Virginia.]

Flowers in pairs, with their ovaries united. Limb of the calyx 4-toothed. Corolla funnel-form, with a slender tube, 4-lobed; the lobes spreading, densely bearded inside with white hairs. Stamens 4: filaments inserted into the throat of the corolla: anthers oblong. Style filiform: stigmas four, linear. Fruit baccate, depressed-globose, composed of the united ovaries of both flowers, each of which contains 4 small horny 1-seeded nucules. Embryo minute, at the extremity of somewhat cartilaginous albumen: cotyledons short; the radicle thick. — Smooth creeping evergreen herbs, with opposite or roundish petioled leaves. Stipules triangular-subulate, minute. Flowers terminal, white or pale rose-color, fragrant. Fruit bright red, edible.

1. MITCHELLA REPENS, *Linn.* *Partridge-berry.*

Leaves roundish-ovate, often slightly cordate; peduncle 2-flowered. — *Linn sp.* 1. *p.* 111; *Michx. fl.* 1. *p.* 86; *Pursh, fl.* 1. *p.* 101; *Ell. sk.* 1. *p.* 198; *Torr. fl.* 1. *p.* 174; *Bigel. fl. Bost. p.* 52; *Bart. fl. Am. Sept.* 3. *t.* 95. *f.* 1; *DC. prodr.* 4. *p.* 452; *Hook. fl. Bor.-Am.* 1. *p.* 287; *Beck, bot. p.* 160; *Darlingt. fl. Cest. p.* 105; *Torr. & Gr. fl. N. Am.* 2. *p.* 34. Syringa baccata, *Pluk. amalth. t.* 444. *f.* 2; *Catesb. Carol.* 1. *t.* 20.

Stems slender, 6 – 12 inches long, branching in all directions, and striking root at the joints. Leaves about half an inch long, dark green and shining, generally marked with a central

whitish longitudinal line, of a firm and somewhat coriaceous texture: petiole shorter than the lamina. Flowers about half an inch long, of two kinds in different plants: one kind with the stamens conspicuously exserted, and the style included; the other with the stamens included and the style exserted: the parts usually in fours, but not unfrequently in fives, and sometimes in sixes. Berries about one-third of an inch in diameter, crowned with the persistent teeth of 2 calyces, edible but insipid, remaining through the winter and following spring.

Moist woods, about the roots of trees; common. *Fl.* June. *Fr.* September. The plant turns black in drying.

TRIBE III. *HEDYOTIDEÆ. Cham. & Schlecht*

Fruit capsular, 2-celled, usually loculicidal; the cells several- or many-seeded. Seeds wingless. Albumen fleshy. Æstivation of the corolla mostly imbricate or contorted.— Herbs or shrubs. Stipules between the petioles, either one or two on each side, or frequently united with the petioles into a membranaceous sheath, which is often fringed with bristles.

4. HEDYOTIS. *Linn.; A. Richard, Rubiac. in mem. soc. hist. Par.* 5. *p.* 133; *Wight & Arn. prodr. fl. Ind. Or.* 1. *p.* 405; *Endl. gen.* 3240. *BLUETS.*

HEDYOTIS, HOUSTONIA and OLDENLANDIA, *Linn.* ANOTIS, &c. *DC.*

[From the Greek, *hedys*, sweet, and *ous (otos)*, an ear; the leaves resembling the ears of some animals.]

Calyx-tube ovate or globose; the limb 4-toothed. Corolla funnel-form, salver-form or rotate, 4-lobed; the lobes imbricate in æstivation. Stamens 4, inserted either into the throat or towards the base of the tube. Stigma usually 2-cleft or 2-lobed. Capsule globose, ovoid or obcordate, mostly coriaceous, the summit often free from and exserted beyond the calyx, 2-celled, open across the summit by loculicidal dehiscence, and at length the valves also split at the top. Seeds few or numerous, on placentæ which project into each cell; the testa pitted or reticulate.— Herbs or suffruticose plants. Stipules connate with the petiole, entire, toothed, or sometimes fringed with bristles. Flowers axillary or terminal, solitary or cymulose, or glomerate. Most of the species turn blackish in drying.

§ 1. *Corolla funnel-form or salver-form; the tube much longer than the calyx-teeth: stamens in one plant inserted in or near the throat of the corolla, and often exserted, and then the style included; in the other, the stamens inserted into the tube of the corolla near its base, and the style exserted: capsule more or less free from the calyx towards the summit, with few* (8 – 20) *seeds in each cell: seeds with a deep hollow on the face, pitted or reticulated.*

1. HEDYOTIS CÆRULEA, *Hook.* *Common Bluets. Dwarf Risk.*

Annual or biennial, smooth; stems numerous, erect or spreading, dichotomous; leaves oval-spatulate or oblanceolate, the radical and lower ones tapering at the base and somewhat

petioled, usually sparsely ciliate; peduncles filiform, elongated; corolla salver-form; capsule reniform-obcordate, free above the middle; seeds roundish, scrobiculate. — *Hook. fl. Bor.-Am.* 1. *p.* 286; *Darlingt. fl. Cest. p.* 104; *Torr. & Gr. fl. N. Am.* 2. *p.* 38. Houstonia cærulea, *Linn. sp.* 1. *p.* 105; *Bot. mag. t.* 370; *Pursh, fl.* 1. *p.* 106; *Ell. sk.* 1. *p.* 192; *Bart. fl. Am. Sept. t.* 34. *f.* 1; *Torr. fl.* 1. *p.* 172; *Bigel. fl. Bost. p.* 53; *Beck, bot. p.* 242. H. Linnæi, α. elatior, *Michx. fl.* 1. *p.* 85.

Stems 3 – 6 inches high, branching from the base; the branches very slender, at first mostly erect, finally somewhat spreading. Radical leaves 3 – 5 lines long and about 2 lines wide, almost hispid on both sides, as well as on the margin; the upper ones smaller, much narrower and nearly smooth. Peduncles 1 – 2 inches long in fruit. Flowers 4 – 5 lines long. Segments of the calyx oblong, (distant in fruit, with the sinuses rounded.) Corolla blue or blue and white, sometimes all white, with a yellow centre; the lobes somewhat ovate and acute. Capsule broader than long, more than half free from the calyx, dehiscent down to the calyx. Seeds 8 – 15 in each cell.

Grassy wet banks, and in woods. April – September.

2. HEDYOTIS CILIOLATA, *Torr.* (Plate XLIV.) *Fringed-leaved Bluets.*

Stems usually numerous and somewhat cespitose, at length spreading, nearly smooth; leaves rather thick, obscurely one-nerved; cauline ones oblanceolate or linear-oblong; the radical and lowest cauline ones oval- or oblong-spatulate, tapering into a petiole, ciliate with short rigid hairs; cymules mostly 2 – 3-flowered, in corymbose clusters; peduncles and pedicels short; lobes of the calyx lanceolate-subulate, about the length of the nearly globose capsule; corolla funnel-form. — *Torr. in Spreng. cur. post. p.* 40; *DC. prodr.* 4. *p.* 422; *Hook. fl. Bor.-Am.* 1. *p.* 286; *Torr. & Gr. fl. N. Am.* 2. *p.* 40. Houstonia ciliolata, *Torr. fl.* 1. *p.* 174; *Beck, bot. p.* 243. H. serpyllifolia, *Graham in bot. mag. t.* 2882, not of *Michx.*

Stems 4 – 6 inches high, at first erect, at length spreading. Radical leaves in a spreading circular tuft, 6 – 8 lines long, somewhat coriaceous; the cauline pairs rather few and distant (the lower internode often 2 inches in length), all of them ciliolate. Stipules broadly ovate, obtuse. Flowers numerous, about one-third of an inch long, lilac or pale purple. Calyx-segments about one-third the length of the corolla, linear-lanceolate. Capsule about one half free from the calyx; the cells 8 – 10-seeded.

Banks of rivers and lakes. Goat Island, Falls of Niagara (*Prof. Hadley*). On the Genesee river, near Rochester (*Prof. Dewey and Mr. J. Carey*). Shore of Lake Ontario and on the banks of Black river, Jefferson county (*Dr. Knieskern*). *Fl.* May – August.

3. HEDYOTIS LONGIFOLIA, *Hook.* *Long-leaved Bluets.*

Smooth; stems erect; leaves linear and oblong-linear, acute or obtuse, tapering to the base, 1-nerved, roughish on the margin, but not ciliate; the radical ones narrowly oval or

oblong, attenuated below into a petiole; cymules 2 – 3-flowered, somewhat paniculate; the pedicels at first short, finally nearly equal, and longer than the fruit; lobes of the calyx subulate-lanceolate, mostly longer than the tube, but shorter than or scarcely exceeding the nearly globose capsule; corolla funnel-form.—*Hook. fl. Bor.-Am.* 1. *p.* 286 (excl. syn. *Michx.*); *Torr. & Gr. fl. N. Am.* 2. *p.* 40. Houstonia longifolia, *Gært. fr.* 1. *p.* 226. *t.* 49. *f.* 8 (fruit); *Willd. sp.* 1. *p.* 583; *Ell. sk.* 1. *p.* 192; *Torr. fl.* 1. *p.* 173; *Bigel. fl. Bost. p.* 53; *Hook. bot. mag. t.* 3099; *H. H. Eaton in Transylv. jour. med. March*, 1832; *Beck, bot. p.* 243. H. angustifolia, *Pursh, fl.* 1. *p.* 106, not of *Michx.*

Stems 5 – 8 inches high, slender, usually several from one root, 4-sided, the angles prominent. Leaves about three-fourths of an inch long, and 1 – 2 lines wide; the pairs somewhat approximated. Stipules short and broad, but rather acute, scarious. Flowers about 3 lines long. Corolla about three times as long as the lobes of the calyx, pale purple, or sometimes nearly white. Capsule about half free from the calyx; the cells about 10-seeded.

Dry hill-sides, fields, etc. Catskill and Troy; also abundant on Hempstead Plains, about Oyster Bay, &c. Long Island. *Fl.* June – August.

§ 2. *Flowers all similar: corolla rotate, shorter than the calyx-teeth: capsule wholly adherent to the calyx; the cells many-* (60 *or more*) *seeded: herb annual.*

4. HEDYOTIS GLOMERATA, *Ell.* *Cluster-flowered Bluets.*

Stem erect or somewhat diffuse, hairy-pubescent, branching; leaves oblong or elliptical-lanceolate, narrowed at the base or slightly petioled, nearly smooth; flowers mostly glomerate in the axils; tube of the calyx hairy, shorter than the lobes.— *Ell. sk.* 1. *p.* 187; *Torr. fl.* 1. *p.* 171; *DC. prodr.* 4. *p.* 421; *Beck, bot. p.* 160; *Torr. & Gr. fl. N. Am.* 2. *p.* 42. H. auricularia, *Walt. fl. Car. p.* 85, not of *Linn.* H. glomerata *and* Virginica, *Spreng. syst.* 1. *p.* 412. Oldenlandia uniflora, *Linn. sp.* 1. *p.* 119. O. glomerata, *Michx. fl.* 1. *p.* 83; *Pursh, fl.* 1. *p.* 102.

Whole plant of a dull green color. Stem 2 – 4 inches high, at first simple and erect, at length branching from the base, and assurgent. Leaves about half an inch long; upper ones nearly sessile and crowded. Stipules adnate to the short petioles, cleft into two subulate divisions. Flowers sometimes solitary, or 2 – 3 together, but usually clustered; when few or terminal, they are mostly pedicellate. Calyx with ovate foliaceous segments. Corolla white; tube very short: segments ovate, generally spinulous, one-third the length of the calyx. Stamens scarcely exserted: anthers somewhat globose. Style almost none: stigmas oblong, obtuse. Capsule large for the size of the flower, globose-didymous, crowned with the persistent teeth of the calyx.

Moist and usually shady places. In a wet woods, Bloomingdale, on the Island of New-York; and on the borders of a swamp about a mile from Brooklyn, Long Island. *Fl.* August.

GROUP 2. *Ovary coherent with the calyx (the limb assuming the form of a crown or pappus, or else is obsolete), one-celled or sometimes with two empty cells, one-ovuled. Seeds with little or no albumen. Stamens inserted on the corolla. Fruit a kind of achenium.— Flowers commonly in heads.*

ORDER LIII. VALERIANACEÆ. *DC.* THE VALERIAN TRIBE.

Limb of the calyx 2 – 4-toothed, obsolete or forming a kind of pappus. Corolla tubular-funnelform or obconical, sometimes gibbous or with a spur at the base; the limb mostly 5-lobed. Stamens distinct, usually fewer than the lobes of the corolla. Ovary with one perfect cell, and two abortive ones. Fruit membranaceous or coriaceous, indehiscent, one-celled, or 3-celled with two of the cells empty. Seed suspended. — Herbs with opposite leaves and no stipules; the perennial species with thick strong-scented roots or rhizomas. Flowers in dichotomous cymes or panicles.

1. VALERIANA. *Tourn.; DC. mem. Valer.; Endl. gen.* 2186. *VALERIAN.*

[From the Latin, *valeo*, to be powerful; on account of its medicinal virtues.]

Limb of the calyx involute after flowering, at length unfolding into a feathery pappus. Corolla obconical, with a cylindrical tube which is often gibbous, but not spurred at the base; the limb obtusely 5-lobed, regular. Stamens 3. Fruit one-celled when mature, one-seeded.— Perennial herbs, or sometimes shrubby plants, with the leaves entire or divided. Flowers cymose; those in the forks sessile; the cymules often paniculate or glomerate. Bracts usually opposite. Corolla white, sometimes bluish or rose-color.

1. VALERIANA SYLVATICA, *Herb. Banks.* (Pl. XLV.) *Tall Swamp Valerian.*

Smooth; stem slightly striate, simple; radical leaves ovate or oblong-spatulate, entire or rarely with two small auriculate lobes, on slender petioles; cauline ones pinnately divided; the divisions lanceolate or ovate-lanceolate, entire or obscurely serrate, the terminal one larger; flowers all perfect and similar, numerous, in a cyme which is at first compact, but at length open corymbose; lobes of the stigma 2 – 3, minute; fruit oblong-ovoid, compressed, smooth. —*Richards. in app. Frankl. journ. ed.* 2. *p.* 2; *Hook. fl. Bor.-Am.* 1. *p.* 291; *Torr. & Gr. fl. N. Am.* 2. *p.* 47. V. dioica, *Pursh, fl.* 1. *p.* 727.

var. *uliginosa*: leaves ciliate, the surface often minutely pubescent; the terminal division frequently toothed. *Torr. & Gr. l. c.* V. sylvatica? *Beck, bot. p.* 164.

Roots consisting of numerous long fibres, having the odor of *V. officinalis*. Plant 2 – 3 feet high. Stem simple, sometimes a little pubescent when young, but commonly smooth, erect.

Stem-leaves 3 – 6 inches long; the divisions in 2 – 5 pairs, varying from oblong-ovate to linear-lanceolate, mostly acute, often entire, but usually with a few remote and small teeth. Flowers numerous, in a pedunculate 2 – 3-forked compound cyme. Calyx, as in the rest of the genus, with the limb at first curled inwards so as to be almost concealed, at length unfolding into a beautiful pappus of numerous feathery rays. Corolla about three lines long, gibbous at the base, rose-color. Stamens exserted. Style very long and filiform: stigmas 2. Fruit ribbed.

Sphagnous swamp in Savannah, Wayne county (*Dr. Sartwell*). *Fl.* June – July. The only other known locality of this interesting plant, in the United States, is Fairhaven, Vermont, where it was first found by Dr. Robbins. Its medicinal properties are no doubt exactly similar to those of *V. dioica*, to which it is nearly allied.

2. FEDIA. *Mœnch.; J. Woods in Linn. trans.* 17. *p.* 421. *t.* 21. *CORN-SALAD.*

Fedia and Valerianella, *Mœnch., DC., Endl., &c.*

[A name of uncertain meaning.]

Limb of the calyx toothed and persistent, or obsolete. Tube of the corolla not spurred, but sometimes gibbous at the base; the limb 5-lobed, regular or somewhat irregular. Stamens 2 or 3. Stigma entire, or 2 – 3-lobed. Fruit 3-celled; two of the cells empty (sometimes confluent into one); the other one-seeded.—Annual smoothish herbs, more or less dichotomous above. Leaves oblong or linear, sessile, entire, or often toothed or incised near the base. Flowers in glomerate or crowded cymules, white, rose-color or purple. Bracts opposite, or somewhat involucellate.

§. Valerianella, Mœnch. *Corolla with a short tube and regular limb: stamens* 3: *stigma* 3-*cleft or entire: empty cells of the fruit membranaceous and inflated, or sometimes nerviform.*

1. Fedia Fagopyrum, *Torr. & Gr.* (Pl. XLVI.) *Buckwheat Corn-salad.*

Fruit triangular, with an ovate outline, nearly smooth when mature, obscurely 3 – 5-toothed at the apex; the lateral angles acute, the anterior somewhat obtuse; upper leaves mostly entire and rather acute; flowers white.—*Torr. & Gr. fl. N. Am.* 2. *p.* 52. F. radiata, *Torr. fl.* 1. *p.* 35 (chiefly), not of *Michx.* Valeriana radiata, *Beck, bot. p.* 164 (partly).

Stem 6 – 18 inches high, usually twice 2-forked above. Leaves about an inch long, somewhat glaucous, a little connate; the lower spatulate, uppermost lanceolate-oblong. Bracts lanceolate, acute; the margins slightly scarious. Corolla funnel-form, about a line and a half long, with a small protuberance on the side of the short narrow tube: lobes semiovate, nearly equal. Stamens and styles included. Stigma small, nearly entire. Fruit about 1½ line long, acute, crowned with the minute border of the calyx: two of the angles sharp; the other occupied by the 2 contracted empty cells, which always remain distinct.

Wet shady grounds. Banks of the Mohawk river, near Utica (*Dr. Gray & Dr. Knieskern*). Penn-Yan (*Dr. Sartwell*). May – June.

ORDER LIV. DIPSACEÆ. *Vaill.; DC.* THE SCABIOUS TRIBE.

Tube of the calyx adherent to the ovary, or sometimes free except at the summit; the limb various, sometimes forming a bristly or plumose pappus. Corolla tubular; the limb 4 or 5-lobed, somewhat irregular. Stamens 4, distinct or rarely united in pairs, often unequal. Ovary one-celled, with a single suspended ovule. Fruit an achenium or membranaceous, not opening, crowned with the limb of the calyx, 1-celled, 1-seeded. Embryo nearly the length of the fleshy albumen.— Herbs with opposite or whorled sessile leaves, destitute of stipules. Flowers aggregated on a common receptacle, in dense involucrate heads, each surrounded at the base with a very short involucel.

1. DIPSACUS. *Tourn.; Linn.; Endl. gen.* 2191. *TEASEL.*

[From the Greek, *dipsao*, to be thirsty; the upper leaves holding water at their connate bases.]

Flowers capitate; the involucre many-leaved, longer than the somewhat foliaceous and acuminate chaff of the receptacle. Involucels 4-sided, closely investing the ovary and fruit. Tube of the calyx coherent with the ovary; the limb cup-shaped or discoid. Limb of the corolla 4-cleft. Stigma longitudinal. — Biennial erect stout herbs, hairy or prickly. Leaves opposite, often connate at the base, undivided or laciniate. Heads large, oblong or roundish; the expansion of the flowers commencing about the middle, and proceeding in opposite directions. Corolla pale purple, yellowish or whitish.

1. DIPSACUS SYLVESTRIS, *Mill.* *Wild Teasel.*

Leaves sessile, slightly connate, radical ones crenate-toothed; scales of the receptacle straight at the extremity; involucres curved upward.—*Mill. dict. no.* 2; *Engl. bot. t.* 1032; *Pursh, fl.* 1. *p.* 96; *Torr. fl.* 1. *p.* 164; *DC. prodr.* 4. *p.* 645; *Beck, bot. p.* 165; *Darlingt. fl. Cest. p.* 98; *Torr. & Gr. fl. N. Am.* 2. *p.* 54.

Stem 3 – 5 feet high, branching, angular and (as well as the involucres and midrib of the leaves) prickly. Radical leaves lanceolate-oblong; cauline ones lanceolate, serrate or entire. Leaflets of the involucre slender, longer than the head. Heads of flowers oblong-ovoid. Corolla pale purple or almost white, pubescent. Scales of the receptacle oblong-cuneate, tapering into a long straight point; those at the top of the head longest.

Fields, road-sides, etc.; naturalized in many places. A native of Europe. *Fl.* July – August. This is suspected by some botanists to be the original of the *D. Fullonum*, or *Fuller's Teasel.*

Order LV. COMPOSITÆ. *Vaill.; Linn.* The Composite Tribe.

Flowers collected into a dense head (compound flower of the older botanists), on a common receptacle, and surrounded by bracts *(scales)* forming an involucre common calyx of *Linnæus)*; the separate flowers often furnished with bracteoles *(chaff* or paleæ). Tube of the calyx coherent with the ovary, and inseparable from it; the limb (called *pappus)* composed of bristles, plumose hairs, scales, etc., or rarely foliaceous, often wanting or reduced to a mere margin. Corolla usually composed of 5 united petals, either ligulate or tubular. Stamens 5 (rarely fewer); the anthers linear, united into a tube (syngenesious), sometimes with an appendage at the top *(appendiculate)*, or at the base *(caudate)*. Ovary one-celled, with a single erect ovule: style in the fertile flowers 2-cleft; the lobes or branches mostly flattish inside, and often furnished with hairs for collecting the pollen, the proper stigmatic surface being in the form of slightly elevated lines along the inner margin.* Fruit an achenium, crowned with the limb of the calyx or pappus. Seed destitute of albumen: radicle short: cotyledons flat or plano-convex.—Herbs, rarely shrubs or trees; the branches often corymbose. Flowers in each head expanding from the margin to the centre; either all of the same color *(homochromous)*, or the marginal ones different from those of the disk (*heterochromous*).

An immensely large and very natural order, embracing about one-tenth of all the phenogamous plants of the world, or of this State about one-ninth. The head of flowers may be considered as a very short or contracted spike; the receptacle being the axis, and the scales of the involucre and the chaff, the bracts. The head is said to be *homogamous*, when all the flowers are perfect; or *heterogamous*, when the marginal ones are pistillate or neuter, and the others are perfect or staminate. It is *discoid*, when all the flowers are tubular; *ligulate*, when they are all flat or ligulate; and *radiate*, when the marginal ones only are ligulate, and the others tubular. Sometimes the flowers are wholly staminate on one plant and pistillate on another, when they are said to be *diœcious*. The receptacle is *paleaceous* or *chaffy*, when it is covered with membranaceous scales (generally thinner than those of the involucre, and like them consisting of modified bracts): it is *naked*, when destitute of scales; *alveolate*, when, after the achenia are removed, it is deeply pitted like a honeycomb; *fimbrillate*, when the margins of the little cells are fringed or bristly; *areolate*, when divided into numerous little angular spaces.

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* As the characters of the tribes are chiefly taken from the forms of the style and the stigmatic surfaces, these must be carefully studied, and the student must become familiar with their various appearances.

CONSPECTUS OF THE TRIBES.

Suborder I. TUBIFLORÆ. Corolla of the perfect flowers tubular, and regularly 5- (rarely 3 – 4-) toothed.

Tribe I. VERNONIACEÆ. Style of the perfect flowers cylindraceous; the branches usually elongated and subulate, hispid throughout; the stigmatic lines not extending beyond their middle.

Tribe II. EUPATORIACEÆ. Style of the perfect flowers cylindraceous; the branches elongated, obtuse or clavate, externally puberulent or papillose towards the summit; the stigmatic lines obscure, terminating near their middle.

Tribe III. ASTEROIDEÆ. Style of the perfect flowers cylindraceous; the branches linear, externally flattish, minutely and equally pubescent above; the stigmatic lines prominent, extending to about the origin of the exterior pubescence.

Tribe IV. SENECIONIDEÆ. Style of the perfect flowers cylindraceous; the branches linear, truncate at the summit and pencillate, or often produced into a conical or elongated hispid appendage; the stigmatic lines rather broad and prominent, extending to the commencement of the appendage or hairy portion.

Tribe V. CYNAREÆ. Style of the perfect flowers thickened and nodose towards the summit, and often pencilled at the node; the branches either concrete or distinct, puberulent on the outside: the stigmatic lines reaching to and confluent at the summit of the branches.

Suborder II. LIGULIFLORÆ. Flowers all perfect or ligulate.

Tribe VI. CICHORACEÆ. Style cylindraceous above; the branches rather long and obtuse, equally pubescent; the stigmatic lines terminating below their middle.—Plants with milky juice.

SUBORDER I. TUBIFLORÆ. *DC.*

Corolla of the perfect flowers tubular, and regularly 5- (rarely 4-) toothed or lobed. Pollen globose, echinate, or (in CYNAREÆ) rarely smooth and elliptical.

TRIBE I. *VERNONIACEÆ. Less.*

Heads discoid, with the flowers all tubular and perfect (homogamous), *or rarely radiate; the ray-flowers ligulate and pistillate. Corolla occasionally palmate, or obscurely 2-lipped. Style cylindrical above; the branches subulate and elongated* (*rarely short and obtuse*), *equally hispid; the stigmatic lines terminating below or near the middle, not confluent.*

1. VERNONIA. *Schreb. gen. p.* 541; *Endl. gen.* 2204. IRON-WEED.

[Named after Mr. WILLIAM VERNON, an English botanist, who many years ago travelled and collected plants in this country.]

Heads several- or many-flowered, homogamous; the flowers all equal and tubular. Involucre imbricate. Receptacle commonly naked. Corolla regular. Filaments smooth. Achenia mostly striate or ribbed, with a cartilaginous callus at the base. Pappus usually double; the inner of numerous bristles; the outer mostly short or minute, often somewhat chaffy.—Mostly perennial herbs, with usually alternate leaves; in the North American species, corymbose-cymose. Flowers purple, rose-color or white.

1. VERNONIA NOVEBORACENSIS, *Willd.* *Common Iron-weed.*

Stem slightly pubescent; leaves lanceolate or elliptical-lanceolate, finely and sharply serrate, roughish above; cyme fastigiate; heads numerous, 20 – 30-flowered; involucre hemispherical-campanulate, shorter than the pappus; the scales appressed, ovate, mostly produced into a subulate or filiform appendage; several of the outermost subulate, loose and bracteolate; achenia smooth or slightly hairy when young, glandular, shorter than the pappus. — *Willd. sp.* 3. *p.* 1632; *Michx. fl.* 2. *p.* 95; *Pursh, fl.* 1. *p.* 511; *Bigel. fl. Bost. p.* 293; *Torr. comp. p.* 282; *Beck, bot. p.* 175; *DC. prodr.* 5. *p.* 63; *Torr. & Gr. fl. N. Am.* 2. *p.* 57. V. præalta, *Less. in Linnæa,* 4. *p.* 264; *Hook. fl. Bor.-Am.* 1. *p.* 57, *Darlingt. fl. Cest. p.* 448. Serratula Noveboracensis, *Linn. sp.* 2. *p.* 818.

var. *præalta:* scales of the involucre acute or acuminate, unarmed, or only a part of them filiform at the top. — *Torr. & Gr. l. c.* V. præalta, *Willd. l. c.* (not of *DC.*); *Michx. l. c.*; *Pursh, l. c.*; *Beck, l. c.* Serratula præalta *and* glauca, *Linn. l. c.*

Stem stout, 3 – 6 feet high, striate, usually purple, simple or a little branching above, and leafy to the summit. Leaves 3 – 6 inches long, often narrowly lanceolate, attenuated at each end and sometimes with short petioles, a little pubescent, and the veins prominent underneath; the upper surface a little roughened with minute elevated points. Heads nearly half an inch in diameter; the scales brownish-purple, mostly ciliate with cobweb-like hairs; the filiform tips spreading or flexuous. Corolla deep clear purple. Pappus tawny, or sometimes dull purplish.

Wet meadows and borders of swamps; very common on Long Island, and in the neighborhood of New-York, but not found in the interior of the State. August.

TRIBE II. *EUPATORIACEÆ. Less.*

Heads discoid, with the flowers all tubular and perfect (homogamous), or sometimes heterogamous; the ray-flowers either tubular or ligulate. Style cylindrical above; the branches usually much elongated, obtuse or clavate, puberulent or papillose externally towards the summit; the stigmatic lines inconspicuous, terminating near the middle branches of the style, not confluent at their termination. Anthers never caudate. Flowers mostly white, blue or purple. Leaves commonly opposite.

CONSPECTUS OF THE GENERA.

Subtribe 1. EUPATORIEÆ. Heads discoid homogamous.

† Pappus composed of slender hairs or bristles.

2. LIATRIS. Receptacle naked. Scales of the involucre not striate. Lobes of the corolla elongated. Achenia ribbed.
3. EUPATORIUM. Receptacle naked, flat. Scales of the involucre numerous. Achenia 5-angled, not striate.
4. MIKANIA. Receptacle naked, flat. Scales of the involucre (and flowers) 4 – 5. Achenia 5-angled, not striate.

Subtribe 2. TUSSILAGINEÆ. Heads with the flowers heterogamous, or dicœcious.

5. NARDOSMIA. Heads corymbose, many-flowered, somewhat dicœcious.
6. TUSSILAGO. Head solitary, many-flowered, heterogamous; the pistillate flowers ligulate, in several series.

Subtribe 1. EUPATORIEÆ, *DC.* *Heads discoid; the flowers all perfect and similar, usually white, rose-color or purple (rarely cream-color), never yellow.*

2. LIATRIS. *Schreb. gen. p.* 542; *Endl. gen.* 2270. *BUTTON SNAKEROOT.*

[A name of unknown derivation.]

Heads few, many-flowered. Scales of the involucre few or numerous, imbricate, not striate. Receptacle naked. Corolla tubular, 5-lobed; the lobes usually elongated. Branches of the style much exserted, cylindraceous or somewhat flattened, obtuse. Achenia nearly terete, tapering to the base, about 10-ribbed. Pappus of numerous plumose or barbellate bristles. — Perennial herbs, with simple stems and a tuberous root. Leaves alternate or scattered, usually lanceolate or linear and entire, with a rigid or cartilaginous margin. Heads disposed in an elongated spike or raceme (flowering from the summit downward), sometimes paniculate, rarely corymbose. Flowers purple (very rarely pale or white); the corolla, style, etc. commonly dotted with resinous globules. — Very showy plants when in flower.

§. EULIATRIS, Torr. & Gr. *Root a globose tuber: leaves linear or lanceolate, grass-like, 1 – 5-nerved, mostly punctate with impressed and resinous dots: heads in a virgate spike or raceme: involucre manifestly imbricate: lobes of the corolla lanceolate or linear: pappus plumose or plumose-barbellate.*

1. LIATRIS CYLINDRACEA, *Michx.* *Small Button-Snakeroot.*

Smooth or slightly hairy; stem (low) leafy; leaves linear and lanceolate-linear, rigid, scarcely punctate, mostly one-nerved; heads few (1 – 7, rarely more), turbinate-cylindrical, sessile or pedicellate, 16 – 20-flowered; scales of the involucre numerous, all short and appressed, with rounded or obtuse abruptly mucronate tips, often ciliate, not punctate; achenia pubescent; pappus very plumose. — *Michx. fl.* 2. *p.* 93; *Ell. sk.* 2. *p.* 275; *DC. prodr.* 5. *p.* 130, not of *Pursh*; *Torr. & Gr. fl. N. Am.* 2. *p.* 69. L. stricta, *M'Nab in Edinb. phil. journ.* 19. *p.* 60. L. flexuosa, *Thomas in Sill. journ.* 37. *p.* 328, with a figure.

Stem 6 – 18 inches high, straight or somewhat flexuous. Leaves 6 – 10 inches long, the lower ones broader and somewhat lanceolate. Heads about an inch long; the pedicels often an inch or more in length, but frequently almost none. Exterior scales commonly short and broad, rarely a little prolonged and foliaceous. Flowers bright purple. Lobes of the corolla hairy inside.

Banks of the Niagara river, near the Falls, on the east side (*Mr. D. Thomas*). *Fl.* August. The specimens from this locality have the stem more flexuous, and the heads with longer pedicels than usual.

2. LIATRIS SPICATA, *Willd.* (Plate XLVII.) *Tall Button-Snakeroot.*

Smooth; stem strict, very leafy; leaves linear, acute, often ciliate towards the base; the upper ones very short, often subulate; the lowermost elongated, 3 – 5-nerved; heads about 9 – 13-flowered, sessile, in a dense elongated spike; involucre cylindrical-campanulate, obtuse at the base; the numerous scales appressed, resinous, punctate, and with narrow scarious (purplish) margins, obtuse; inner ones oblong; exterior oval or ovate or roundish, short; achenia hairy; pappus densely barbellate. — *Willd. sp.* 3. *p.* 1636; *Bot. mag.* 1411; *Ell. sk.* 2. *p.* 273; *Brit. fl. gard. t.* 49; *Nutt. gen.* 2. *p.* 131; *Torr. compend.* 3. *p.* 282; *Beck, bot. p.* 175; *Darlingt. fl. Cest. p.* 448; *DC. prodr.* 5. *p.* 130; *Torr. & Gr. fl. N. Am.* 2. *p.* 73. L. macrostachya, *Michx. fl.* 2. *p.* 91; *Pursh, fl.* 2. *p.* 507. Serratula spicata, *Linn. sp.* 2. *p.* 819; *Andr. bot. rep. t.* 401.

Stem 3 – 5 feet high. Leaves extremely numerous, erect, more or less hairy on the nerves underneath, strongly punctate; those of the stem about 2 lines wide and 3 – 6 inches long, gradually diminishing in length upward, till they are only about an inch long; radical ones about a foot in length and 3 – 4 lines wide, tapering at the base into a long slender petiole. Spikes 6 – 18 inches long; the heads about 8 lines long: lower bracts longer, the upper shorter than the heads. Flowers bright purple. Corolla slightly sprinkled with resinous dots; the lobes smooth inside. Achenia about the length of the pappus.

Borders of a swamp on Staten Island, about three miles from the Quarantine. *Fl.* August. The root of this plant is a popular medicine, being employed as a tonic and diuretic. It is one of the medicinal articles sold by the Shakers.

3. LIATRIS SCARIOSA, *Willd.* *Large-flowered Button-Snakeroot.*

Stem a little pubescent; leaves lanceolate, pubescent or smooth; radical ones obovate-oblong, tapering into a petiole; heads (very large) racemose or spicate, globose, 20 – 40-flowered; scales of the involucre very numerous, obovate or spatulate, very obtuse, often punctate, with more or less ciliate scarious often denticulate and colored margins, the lower ones sometimes a little spreading or squarrose, the lowest bracteolate; achenia hairy or villous; pappus plumose-barbellate.—*Willd. sp.* 3. *p.* 1635; *Ell. sk.* 2. *p.* 281; *Bot. mag. t.* 1709; *Brit. fl. gard. t.* 87; *Bot. reg. t.* 590; *Bigel. fl. Bost. p.* 293; *Torr. compend. p.* 282; *Hook. fl. Bor.-Am.* 1. *p.* 302; *Beck, bot. p.* 175; *Torr. & Gr. fl. N. Am.* 2. *p.* 75. L. squarrulosa, aspera *and* sphæroidea, *Michx. fl.* 2. *p.* 92. L. scariosa *and* sphæroidea, *DC. prodr.* 5. *p.* 129 & 130. L. heterophylla, *Nutt. gen.* 2. *p.* 131. Serratula scariosa, *Linn. sp.* 2. *p.* 818.

Stem 2 – 5 feet high, stout, striate. Stem-leaves 2 – 4 lines wide, the little impressed dots often so slight as to be almost imperceptible, at other times quite distinct, especially when the leaves are quite smooth; radical leaves often an inch or more in breadth. Heads varying from few to 20 or more, usually on very distinct pedicels, but sometimes nearly sessile. When

the plant is very robust, the lower part of the spike is somewhat branched. Heads often an inch in diameter. Scales with a broad rounded summit, and a little scarious on the margin. Flowers bright purple. Corolla smooth inside. Achenium about the length of the plumose-barbellate pappus.

Sandy, moist bushy places; Long Island, particularly in Suffolk County. *Fl.* August – September. I have not seen this very handsome species in any other part of the State.

3. EUPATORIUM. *Tourn. inst. t.* 259; *Endl. gen.* 2280. *HEMP-WEED.*

[Named after *Eupator*, king of Pontus, who is said to have used one of the species as a medicine.]

Heads 3 – many-flowered. Involucre cylindrical or campanulate; the scales imbricated in 2 – 3 or more series, or sometimes nearly equal in a single series. Receptacle flat, naked. Corolla tubular-funnelform, or often with a campanulate limb, 5-toothed, frequently dilated at the base. Anthers included. Branches of the style mostly exserted and elongated, cylindraceous or somewhat flattened, obtuse. Achenia 5-angled, without intermediate striæ. Pappus a single series of very slender capillary bristles, rough or minutely serrulate. — Perennial herbs, often sprinkled with resinous dots, with opposite (rarely alternate or verticillate) simple or rarely divided leaves. Heads corymbose. Flowers purple, blue or white.

§ 1. *Heads cylindrical, 5 – 10-flowered: scales of the involucre colored, obtuse, imbricated in several series, the outermost much shortest: leaves verticillate: flowers purplish.*

1. EUPATORIUM PURPUREUM, *Linn.* *Joe Pye Weed.*

Stem sout, simple, hollow or nearly solid; leaves 3 – 6 in a whorl or rarely opposite, oblong-ovate or lanceolate, more or less petioled, acuminate, veiny, rough or smooth above, somewhat pubescent underneath and sprinkled with resinous dots, serrate; heads in a large compound corymb, 5 – 9-flowered; achenia smooth, glandular. — *Linn. sp.* (ed. 1.) 2. *p.* 838; *Hook. fl. Bor.-Am.* 1. *p.* 304; *Darlingt. fl Cest. p.* 453; *Torr. & Gr. fl. N. Am.* 2 *p.* 82. E. trifoliatum, *Linn. l. c.* E. purpureum, maculatum, verticillatum, ternifolium *and* dubium, *DC. prodr.* 5. *p.* 151.

var. 1. Stem tall, somewhat smooth and glaucous, purple at the nodes (and sometimes throughout); leaves mostly 4 – 6 in a whorl, slightly petioled, oblong-ovate or oblong-lanceolate, serrate, often rugosely veiny (smooth and even in shady places). — *Torr. & Gr. l. c.* E. purpureum, *Linn. sp. ed.* 2. *p.* 1173; *Willd. sp.* 3. *p.* 1759 (partly); *Michx. fl.* 2. *p.* 98; *Bigel. fl. Bost. p.* 297. E. verticillatum, *Willd. l. c.* E. trifoliatum, *Darlingt. l. c.* E. angustifolium, *Torr. cat. pl. N. York.* E. falcatum, *Michx. l. c.*

var. 2. Stem mostly striate or grooved, pubescent and often glandular or viscid above, marked with purple linear spots; leaves mostly 3 – 4 (sometimes 5) in a whorl, ovate, pe-

tioled. — E. purpureum, *β. Linn. sp. ed.* 1. *l. c.* E. purpureum, *var.* maculatum, *Darlingt. l. c.; Torr. & Gr. l. c.* E. maculatum, *Linn. sp. ed.* 2. *p.* 1174; *Willd. l. c.; Michx. l. c.; Bart. fl. Am. Sept. t.* 102. E. punctatum, *Willd. enum.* 2. *p.* 853; *Pursh, fl.* 2. *p.* 515. E. amœnum, *Pursh, l. c.* E. ternifolium, *Ell. sk.* 2. *p.* 306. E. trifoliatum, *Linn. l. c.*

An extremely variable plant. Stem 3 – 8 feet high, hollow, or more or less completely filled with pith. Leaves 3 – 8 inches long and 2 – 3 inches wide, sometimes (particularly in dry open situations) very rugose and of a thick texture, at other times (especially in shady swamps) thin and membranaceous, often cuneate at the base, with a very distinct petiole. Corymb sometimes nearly a foot in diameter. Involucre purplish or whitish; the scales 12 – 18, lanceolate and oblong, slightly 2 – 3-nerved. Corolla pale purple or flesh-color. Style very much exserted, bulbous at the base.

Swamps, borders of low woods, and wet thickets; very common. August.

The various forms of this plant have been regarded as distinct species by many botanists, but they seem to pass insensibly into each other. A decoction of the root is used as a remedy for gravel. The popular name is said to be that of an Indian who recommended it to the whites.

§ 2. *Heads somewhat cylindrical or campanulate, 5 – many-flowered: scales 8 – 15, more or less imbricate; the exterior shortest: leaves opposite: flowers white: leaves, corolla and achenia more or less dotted with resinous grains.*

2. EUPATORIUM LEUCOLEPIS, *T. & G.* (Pl. xlviii.) *White-scaled Hemp-weed.*

Stem mostly simple, puberulent; leaves opposite, divaricate, lanceolate or linear, obtuse, closely sessile, serrate, very rough on both sides, punctate, strongly one-nerved, the lower ones obscurely 3-nerved or somewhat veiny; corymb fastigiate, canescent; scales of the involucre 8 – 10, lanceolate, acute or acuminate, very pubescent and glandular on the back, white and scarious at the summit, as long as the flowers; achenia minutely glandular. — *Torr. & Gr. fl. N. Am.* 2. *p.* 84. E. glaucescens, *β.* leucolepis, *DC. prodr.* 5. *p.* 177. E. linearifolium, *Michx. fl.* 2. *p.* 97 (partly); *Pursh, fl.* 2. *p.* 513 (partly); *Nutt. gen.* 2. *p.* 135.

Stem about 2 feet high, slender. Leaves 2 inches long and 4 – 5 lines wide, spreading and often a little recurved, sometimes fascicled in the axils, of a pale glaucous hue; the serratures appressed. Branches of the small compound corymb clothed with a short whitish pubescence. Corolla dilated at the base; the limb campanulate; lobes ovate, short. Style much exserted.

Rather dry sandy swamps; near Sag-Harbor, Long Island (*Mr. S. B. Buckley*). *Fl.* August – October.

3. EUPATORIUM TEUCRIFOLIUM, *Willd.* *Germander-leaved Hemp-weed.*

Stem roughish-pubescent, corymbose at the summit; leaves opposite (the uppermost often alternate), closely sessile, ovate-oblong and ovate-lanceolate, obtuse or truncate at the base,

somewhat triply-nerved, veiny, rough and a little pubescent, coarsely serrate-toothed; branches of the corymb few, often alternate; heads glomerate; scales of the involucre 10, hispidly pubescent, oblong-lanceolate, rather acute, the interior ones shorter than the flowers.—*Willd. sp.* 3. *p.* 1753, *and hort. Berol. t.* 32; *Pursh, fl.* 2. *p.* 513; *Torr. compend. p.* 234; *DC. prodr.* 5. *p.* 178; *Torr. & Gr. fl. N. Am.* 2. *p.* 86. E. verbenæfolium, *Michx. fl.* 2. *p.* 98; *Ell. sk.* 2. *p.* 301; *Bigel. fl. Bost. p.* 296; *Beck, bot. p.* 196; *Darlingt. fl Cest. p.* 450. E. lanceolatum, *Muhl. in Willd. l. c.* E. pubescens, *Bigel. l. c.* not of *Muhl. & Willd.*

Stem 2 – 3 feet high, strict, rather slender, finely striate. Leaves 2 – 3 inches long; the serratures or teeth often very coarse; lower leaves so closely sessile and broad at the base as to appear somewhat clasping; upper ones obtusely cuneate at the base; the epidermis of the upper surface sometimes furnished with minute bristles. Corymbs usually dense, but in shady places often open. Heads often 6-flowered. Scales of the involucre a little scarious and whitish at the tip.

Low grounds and borders of thickets; Long Island, &c.; not found in the interior of the State. *Fl.* August – September.

4. EUPATORIUM ROTUNDIFOLIUM, *Linn.* *Round-leaved Hemp-weed.*

Stem densely pubescent, corymbose at the summit; leaves opposite, roundish-ovate, mostly obtuse, truncate or somewhat cordate at the base, sessile, triply nerved, veiny, rough and pubescent, pale or somewhat hoary and glandular underneath, deeply crenate-toothed; corymb fastigiate; heads 5-flowered; scales of the involucre 8 – 10, very pubescent, glandular; the exterior very short; the interior linear-lanceolate, abruptly acute or acuminate.—*Linn. sp.* 2. *p.* 387; *Michx. fl.* 2. *p.* 98; *Pursh, fl.* 2. *p.* 514; *Ell. sk.* 2. *p.* 310; *Torr. compend. p.* 284; *Hook. fl. Bor.-Am.* 1. *p.* 304; *Beck, bot. p.* 196; *DC. prodr.* 5. *p.* 178; *Darlingt. fl. Cest. p.* 450; *Torr. & Gr. fl. N. Am.* 2. *p.* 87. E. Marrubium, *Walt. fl. Car. p.* 199.

Stem 2 – 3 feet high, slender, the pubescence rather rough. Leaves 1 – 2 inches long, sometimes almost orbicular, sprinkled with resinous dots. Corymb flat-topped. Styles much exserted. Achenia glandular. Pappus a little longer than the corolla.

Sandy fields, Queens county, Long Island (*Mr. Willis*). *Fl.* August – September.

5. EUPATORIUM SESSILIFOLIUM, *Linn.* *Upland Boneset.*

Smooth; stem usually flexuous, corymbosely branched at the summit; leaves lanceolate or ovate-lanceolate, closely sessile or partly clasping, rounded at the base, tapering to the acuminate apex, sharply serrate, obscurely punctate and paler underneath; heads 5-flowered; scales of the involucre 10, imbricated somewhat in a triple series, oval or oblong obtuse, canescently pubescent, glandular.— *Linn. sp.* 2. *p.* 837; *Michx. fl.* 2. *p.* 98; *Pursh, fl.* 2. *p.* 513; *Ell. sk.* 2. *p.* 297; *Bigel. fl. Bost. p.* 295; *Beck, bot. p.* 197; *Darlingt. fl. Cest. p.* 451; *DC. prodr.* 5. *p.* 151; *Torr. & Gr. fl. N. Am.* 2. *p.* 88. E. truncatum, *Ell. l. c.*

Stem 2 – 4 feet high, very smooth, finely striate; the corymbose branches and pedicels pubescent. Leaves 3 – 5 inches long and 1 – 1½ inch wide, rather thin. Corymb widely spreading, very compound. Heads cylindrical, always 5-flowered. Scales greenish-white, very pubescent. Pappus longer than the flower.

Borders of woods, in dry bushy places and on rocky hill-sides. August – September. Not rare, except in the western part of the State.

6. EUPATORIUM PERFOLIATUM, *Linn.* *Boneset* or *Thoroughwort.*

Leaves connate-perfoliate, lanceolate-oblong, acuminate, crenate-serrate, rugose, pubescent underneath; heads commonly 10-flowered.— *Linn. sp.* 2. *p.* 838; *Pursh, fl.* 2. *p.* 516; *Ell. sk.* 2. *p.* 302; *Bigel. med. bot.* 1. *p.* 328. *t.* 2, *and fl. Bost. p.* 297; *Raf. med. bot. t.* 36; *Beck, bot. p.* 198; *Darlingt. fl. Cest. p.* 451; *Hook. fl. Bor.-Am.* 1. *p.* 305; *DC. prodr.* 5. *p.* 151; *Torr. & Gr. fl. N. Am.* 2. *p.* 88. E. connatum, *Michx. fl.* 2. *p.* 99.

Stem stout, 2 – 4 feet high, mostly solid, terete, clothed with a woolly or hairy pubescence. Leaves 4 – 8 inches long, for the most part perfectly united at their bases, but sometimes contracted and only slightly connate, decussate, divaricate; the veinlets reticulated and prominent underneath, copiously sprinkled with resinous dots. Corymb large, fastigiate, very compound. Scales of the involucre 12 – 15, very pubescent, glandular; inner ones linear-lanceolate, with scarious tips. Styles much exserted. Achenia glandular. Pappus shorter than the corolla.

Low swampy grounds; very common throughout the State. July – September. A popular as well as officinal medicine. It is a tonic, diaphoretic, emetic or aperient, according to the dose. The common mode of administering it is in the form of infusion; but sometimes the powdered leaves are given. See *Bigelow's Medical Botany, l. c.*, and *Wood & Bache's U. S. Dispens. p.* 297.

§ 3. *Heads* 8 – 30-*flowered: scales of the campanulate involucre* 8 – 20, *nearly equal and in a single series; leaves opposite, ovate, petioled, not punctate or sprinkled with resinous grains: achenia not glandular: flowers white or purple.*

7. EUPATORIUM AGERATOIDES, *Linn. f.* *White Snakeroot.*

Smooth; stem branching at the summit; leaves on long petioles, broadly ovate, sometimes slightly cordate, acuminate, triply nerved, membranaceous, coarsely and sharply serrate; heads 12 – 20-flowered; scales of the involucre narrowly lanceolate, scarious and rather obtuse at the tips, slightly pubescent and ciliate. — *Linn. f. suppl. p.* 355; *Willd. sp.* 3. *p.* 1765; *Pursh, fl.* 2. *p.* 516; *Ell. sk.* 2. *p.* 303; *Bigel. fl. Bost. p.* 298; *Hook. fl. Bor.-Am.* 1. *p.* 305; *Beck, bot. p.* 198; *DC. prodr.* 5. *p.* 175; *Darlingt. fl. Cest. p.* 451; *Torr. & Gr. fl. N. Am.* 2. *p.* 89. E. urticæfolium, *Michx. fl.* 2. *p.* 100, not of *Linn.* Ageratum altissimum, *Linn. sp.* 2. *p.* 839.

Stem 2 – 3 feet high, usually a little branched above. Leaves 3 – 5 inches long and 2 – 3 inches wide, obtuse or truncate, or abruptly tapering at the base; the petiole 1 – 2 inches long: corymb compound. Heads usually 12 – 15-flowered. Flowers pure white, somewhat fragrant. Corolla narrowed below, campanulate at the summit; the lobes ovate, smooth. Style much exserted.

Moist woods and thickets, in rich soil; common. August – September.

8. EUPATORIUM AROMATICUM, *Linn.* *Sweet-scented Hemp-weed.*

Pulverulent-pubescent; stem branching at the summit; leaves on short petioles, or sometimes almost sessile, ovate or ovate-oblong, somewhat cordate, acute but scarcely acuminate, triply nerved, of a thickish and firm texture, mostly roughish-pubescent, coarsely and rather obtusely serrate; heads mostly 12 – 15-flowered; scales of the involucre linear-lanceolate, pubescent, with slightly scarious and rather obtuse tips.— *Linn. sp.* 2. *p.* 839; *Willd. sp.* 3. *p.* 1765; *Michx. fl.* 2. *p.* 100; *Pursh, fl.* 2. *p.* 516; *Ell. sk.* 2. *p.* 304; *Bigel. fl. Bost. p.* 298; *Beck, bot. p.* 198; *DC. prodr.* 5. *p.* 175; *Darlingt. fl. Cest. p.* 452; *Torr. & Gr. fl. N. Am.* 2. *p.* 90. E. cordatum, *Walt. fl. Car. p.* 199; *DC. l. c.* E. melissoides, *Willd. l. c. p.* 1754. E. ceanothifolium, *Muhl. in Willd. l. c.; DC. l. c.*

Stem 1½ – 3 feet high, slender, corymbose at the summit. Leaves 2 – 3 inches long (rarely 3 in a whorl); the veins prominent underneath; lower ones often cordate: petiole 1 – 5 lines long. Corymb with fewer heads than in the preceding species. Flowers somewhat fragrant.

Dry sandy thickets; about half a mile from the South Ferry, Brooklyn, Long Island. August – September. This species can be distinguished from *E. ageratoides* by its pubescent stem, smaller and thick leaves and short petioles.

4. MIKANIA. *Willd. sp.* 3. *p.* 1452; *Endl. gen.* 2282. *CLIMBING HEMP-WEED.*

[Dedicated to Prof. MIKAN, of Prague; a botanist who lived in the last century.]

Heads mostly 4-flowered. Receptacle naked, narrow. Scales of the involucre 4 or 5. Corolla dilated or campanulate at the summit, 5-toothed. Anthers partly exserted. Achenia angled. Pappus in a single series, capillary, rough. — Shrubby or herbaceous, mostly climbing plants, with opposite commonly cordate leaves. Heads corymbose, panicled or spiked. Flowers whitish.

1. MIKANIA SCANDENS, *Willd.* *Common Climbing Hemp-weed.*

Stem smooth, twining; leaves on slender petioles, hastate-cordate, acuminate, repandly toothed; corymbs panicled, clustered; scales of the involucre lanceolate; achenia glandular. —*Willd. sp.* 3. *p.* 1743; *Pursh, fl.* 2. *p.* 517; *Ell. sk.* 2. *p.* 292; *Bigel. fl. Bost. p.* 295; *Beck, bot. p.* 198; *Darlingt. fl. Cest. p.* 454; *Torr. & Gr. fl. N. Am.* 2. *p.* 91. Eupatorium scandens, *Linn.; Michx. fl.* 2. *p.* 97; "*Jacq. ic. rar. t.* 169."

Stem 3 – 6 feet or more in length, branching, striate. Leaves mostly about 2½ inches long, somewhat triangular in the outline, tapering above into a long slender point, sprinkled on both sides with very minute resinous particles. Flowers in numerous compound cymose panicles. Involucral scales acute. Corolla purplish white, or pale flesh-color.

Moist shady thickets, particularly along rivers; rather common. August – September.

Subtribe 2. TUSSILAGINEÆ, Less. *Heads with the flowers dissimilar or somewhat diœcious (white, purplish, or sometimes yellow); the pistillate one either ligulate or tubular.*

5. NARDOSMIA. *Cass. in dict. sc. nat.* 34. *p.* 186; *Endl. gen.* 2285.

SWEET COLTSFOOT.

[From the Greek, *nardos*, spikenard, and *osme*, odor.]

Heads many-flowered, somewhat diœcious. STERILE PL. Flowers of the ray in a single series, pistillate, ligulate; of the disk numerous, perfect but infertile, with the corolla tubular. FERTILE PL. Flowers of the ray in several series, pistillate, mostly ligulate; those of the disk few. Scales of the involucre in a single series, equal to or shorter than the flower. Receptacle flat, naked. Achenia somewhat terete, smooth. Pappus capillary, shorter and less copious in the sterile than in the fertile plant.— Perennial herbs. Leaves radical, cordate, toothed or lobed, petioled. Scapes with scaly bracts; the heads in a fastigiate thyrsus or corymb. Flowers purplish or nearly white, fragrant.

1. NARDOSMIA PALMATA, *Hook.* (Plate XLIX.) *Sweet Coltsfoot.*

Leaves reniform or roundish-cordate, tomentose underneath, palmately 5 – 7-lobed; the segments coarsely toothed, often incised or somewhat lobed.—*Hook. fl. Bor.-Am.* 1. *p.* 308; *DC. prodr.* 5. *p.* 206; *Torr. & Gr. fl. N. Am.* 2. *p.* 93. N. palmata, Hookeriana, *and* speciosa, *Nutt. in trans. Amer. phil. soc.* (n. ser.) 7. *p.* 288. Tussilago palmata, *Ait. Kew.* (ed. 1.) 3. *p.* 188. *t.* 11; *Pursh, fl.* 2. *p.* 531; *Beck, bot. p.* 199.

Leaves (when the plant is in flower) 3 – 5 inches in diameter, much larger and smoothish late in the season, variable in the divisions and toothing. Scape stout, 6 – 12 inches high, clothed with numerous naked sheathing scales. Heads in a corymbose thyrsus.

Swamps near Saratoga (*Dr. Steele; Prof. Hitchcock*). *Fl.* May. This plant has not recently been found in the locality here given, which is the only one for this rare species known in the State. It has been found in Fairhaven, Vermont, within a few miles of the boundary of New-York.

6. TUSSILAGO. *Tourn.; Endl. gen.* 2288. COLTSFOOT.

[From the Latin, *tussis*, a cough; for the cure of which the plant is used.]

Heads many-flowered, heterogamous. Flowers of the ray very narrowly ligulate, in several series, pistillate; those of the disk few, tubular, staminate. Scales of the involucre oblong, obtuse, somewhat in a single series. Receptacle naked. Anthers scarcely caudate. Style abortive in the flowers of the disk; in those of the ray 2-cleft; the branches somewhat terete. Achenia of the ray cylindrical-oblong, smooth; in the disk abortive. Pappus of the ray-flowers in many series; of the disk in a single series, capillary.—A perennial herb. Rhizoma rather thick. Leaves radical, appearing later than the flowers, cordate, angular-toothed, petioled. Scape clothed with scaly bracts, woolly, bearing a single head. Flowers yellow.

1. TUSSILAGO FARFARA, *Linn.* *Common Coltsfoot.*

Engl. bot. t. 429; *Willd. sp.* 3. *p.* 1967; *Torr. compend. p.* 307; *Beck, bot. p.* 200; *DC. prodr.* 5. *p.* 208; *Torr. & Gr. fl. N. Am.* 2. *p.* 94.

Caudex short. Leaves (when fully grown) 3 – 5 inches in diameter, smoothish above; the under surface and the long petiole whitish and tomentose; the margin irregularly toothed and angular, with the points of the teeth discolored. Scape 4 – 8 inches high, clothed with oblong brownish scales. Head of flowers about three-fourths of an inch in diameter.

Moist clayey banks; perfectly naturalized in the northern and western part of the State. *Fl.* March – April. A native of Europe. The dried leaves are sometimes smoked for the relief of asthma.

TRIBE III. *ASTEROIDEÆ. Less.*

Heads heterogamous or sometimes homogamous, rarely diœcious. Style (in the perfect flowers) cylindraceous above; the branches flat or flattish, mostly linear or lanceolate, the upper part equally and minutely pubescent externally; the conspicuous stigmatic lines, terminating where the exterior pubescence commences, not confluent. — Leaves alternate, or rarely opposite.

CONSPECTUS OF THE SUBTRIBES.

Subtribe I. ASTERINEÆ. Heads heterogamous and radiate, or homogamous. Receptacle seldom chaffy. Anthers not caudate. Leaves alternate.

Div. 1. ASTEREÆ. Heads radiate, heterochromous (rays never yellow).

Div. 2. CHRYSOCOMEÆ. Heads radiate or homogamous, homochromous (both the ray and the disk yellow).

Subtribe II. BACCHARIDEÆ. Heads diœcious or heterogamous, but never radiate; the pistillate flowers tubular, slender or filiform, in several series. Receptacle not chaffy. Anthers not caudate.

Subtribe III. TARCHONANTHEÆ. Heads diœcious or heterogamous, but never radiate; the pistillate flowers tubular and very slender, mostly in several series. Anthers caudate.

Subtribe IV. INULEÆ. Heads heterogamous and radiate, or homogamous and discoid, never diœcious. Receptacle not chaffy. Anthers caudate. Leaves alternate.

Subtribe I. ASTERINEÆ, *DC. Heads heterogamous and radiate, or homogamous, never diœcious. Receptacle seldom chaffy. Anthers not caudate. Leaves almost always alternate.*

CONSPECTUS OF THE DIVISIONS AND GENERA.

Div. 1. ASTEREÆ. Heads heterogamous, radiate; the rays white, purple or blue; the disk-flowers yellow, but frequently changing to purple in fading.

7. SERICOCARPUS. Pappus simple, unequal. Flowers of the ray and disk few. Involucre oblong, imbricated, cartilaginous.

8. ASTER. Pappus simple, copious. Rays numerous, in a single series. Involucre more or less imbricated. Receptacle alveolate.

9. DIPLOPAPPUS. Pappus double; the exterior short and setaceous, or squamellate-subulate. Rays in a single series. Involucre imbricated.

10. ERIGERON. Pappus either simple or double; the exterior setaceous-subulate, or squamellate. Rays very numerous, and often in two or more series. Scales of the involucre nearly equal, almost in a single series. Receptacle naked.

Div. 2. CHRYSOCOMEÆ. Heads either heterogamous and radiate, or homogamous and discoid; the rays and disk-flowers yellow and unchanging. Receptacle never chaffy.

11. SOLIDAGO. Rays few; disk-flowers several. Pappus similar in the disk and ray, simple. Receptacle alveolate.

12. CHRYSOPSIS. Pappus of the ray double, and dissimilar; exterior pappus short, setose or chaffy; the inner capillary.

Div. 1. ASTEREÆ, *DC. Heads heterogamous, radiate; the rays white, purple or blue; disk-flowers yellow, but frequently changing to purple in fading. Receptacle not chaffy.*

7. SERICOCARPUS. *Nees, Ast. p.* 148; *Endl. gen.* 2310. *SERICOCARPUS.*

Species of ASTER, *Linn. & others.*

[From the Greek, *seriktos*, silky, and *karpos*, fruit; the achenia being very silky.]

Heads 12 – 15-flowered; the ray-flowers about 5; those of the disk tubular, fertile. Involucre oblong or somewhat cylindrical; the scales closely imbricated in several series, nerveless or obscurely one-nerved, whitish and cartilaginous towards the base, the upper part herbaceous and often spreading or squarrose. Receptacle small, alveolate; the alveoli toothed or lacerate-ciliate. Rays oblong-linear. Appendages of the style (in the disk-flowers) subulate. Achenia obpyramidal, short, densely silky. Pappus composed of simple, rigid, rough bristles.—Perennial herbs, corymbose at the summit, with alternate entire or serrate sessile leaves. Heads in crowded corymbs. Flowers of the ray white; of the disk yellowish.

1. SERICOCARPUS CONYZOIDES, *Nees.* *Broad-leaved Sericocarpus.*

Stem somewhat pubescent, slightly angular; leaves ciliate, smooth underneath, veiny, obscurely 3-nerved; the upper ones oblong or lanceolate; lowermost spatulate-oval, coarsely serrate towards the apex, tapering into a margined petiole at the base; involucre oblong-turbinate, the scales squarrose at the tip; rays rather short; pappus ferruginous. — *Nees,*

Ast. p. 150; *DC. prodr.* 5. *p.* 261; *Darlingt. fl. Cest. p.* 470; *Torr. & Gr. fl. N. Am.* 2. *p.* 102. Conyza asteroides, *Linn. sp.* 2. *p.* 861. Aster conyzoides, *Willd. sp.* 3. *p.* 2043; *Pursh, fl.* 2. *p.* 555; *Ell. sk.* 2. *p.* 341; *Nutt. gen.* 2. *p.* 158; *Bigel. fl. Bost. p.* 311; *Beck, bot. p.* 181. A. Marilandicus, *Michx. fl.* 2. *p.* 108.

Stem 12 – 18 inches high, straight, slender but rigid, smoothish below, more or less pubescent above. Leaves of a firm texture, 2 – 3 inches long; the radical ones often an inch or more in breadth; upper ones mostly entire. Heads solitary and pedicellate, or more commonly sessile in small clusters. Scales closely appressed and whitish at the base, more or less spreading above; outer ones bright green at the tip; inner ones pale.

Dry woods and hill-sides; common. *Fl.* Latter part of June – August.

2. SERICOCARPUS SOLIDAGINEUS, *Nees.* *Narrow-leaved Sericocarpus.*

Smooth; stem slender, somewhat flexuous, angled with elevated lines; leaves spatulate-linear or linear, obtuse, entire, rough on the margin, obscurely 3-nerved or slightly veiny; involucres cylindraceous; scales squarrose at the tips; rays elongated; pappus white. — *Nees, Ast. p.* 149; *Hook. fl. Bor.-Am.* 2. *p.* 14; *DC. prodr.* 5. *p.* 261; *Darlingt. fl. Cest. p.* 470; *Torr. & Gr. fl. N. Am.* 2. *p.* 102. Conyza linifolia, *Linn. l. c.* Aster solidaginoides, *Willd. sp.* 3. *p.* 2024; *Pursh, fl.* 2. *p.* 503; *Bigel. fl. Bost. p.* 303; *Beck, bot. p.* 180. A. solidagineus, *Michx. fl.* 2. *p.* 108.

Plant pale yellowish green. Stems about a foot and a half high, usually flexuous and sometimes tortuous, often several from one root. Leaves 1 – 2 inches long and 2 – 3 lines wide, occasionally broader. Peduncles of the corymb elongated, with the flowers glomerate at the extremity. Outer scales of the involucre broad, and green at the tip; inner ones pale, ciliate. Rays 3 – 8, much longer than the disk.

Woods and copses, both in dry and in moist situations; more rare than the preceding. *Fl.* July – August.

8. ASTER. *Tourn. inst. t.* 174; *Torr. & Gr. fl. N. Am.* 2. *p.* 103. *STAR-WORT.*

ASTER, BIOTIA, TRIPOLIUM and HELIASTRUM, *DC.*

[The name, which is the Greek for star, alludes to the appearance of the heads of flowers.]

Heads many-flowered; the ray-flowers in a single series, pistillate; those of the disk tubular, perfect. Scales of the involucre more or less imbricated, usually with membranaceous or foliaceous tips. Receptacle flat, alveolate or rarely naked. Appendages of the style (in the disk-flowers) lanceolate or subulate. Achenia usually compressed. Pappus composed of simple rough capillary bristles.— Perennial (or rarely annual) herbs. Leaves alternate, entire or serrate. Inflorescence generally corymbose-paniculate. Rays white, purple or blue, never yellow; disk-flowers yellow, often changing to purple in withering.

An immense genus, and perplexing even to the experienced botanist. Many of the species are very difficult to characterize, especially those belonging to the section of ASTER *proper*. I have followed very closely the arrangement and description of the species as they are given in the Flora of North America.

§ 1. BIOTIA, *DC. Scales appressed, nearly destitute of herbaceous tips; bristles of the pappus unequal, rather rigid, the inner series mostly a little thickened towards the apex; achenia slender, scarcely compressed: leaves ample, mostly petioled, coarsely serrate; the radical ones cordate.*

1. ASTER CORYMBOSUS, *Ait.* *Corymbed Aster.*

Stem slender, often flexuous, terete; leaves membranaceous, coarsely or incisely and unequally serrate with sharp spreading teeth, conspicuously acuminate, all but the uppermost cordate and on slender naked petioles, ovate or ovate-lanceolate; heads loosely corymbose; involucre shorter than the disk; the exterior scales roundish-ovate; rays (white) 6 – 9. — *Ait. Kew.* (ed. 1.) 3. *p.* 207; *Pursh, fl.* 2. *p.* 552; *Ell. sk.* 2. *p.* 365; *Bigel. fl. Bost. p.* 314; *Torr. compend. p.* 299; *Beck, bot. p.* 187. Eurybia corymbosa, *Cass.; Nees, Ast. p.* 143; *Lindl. bot. reg. t.* 1532; *Hook. fl. Bor.-Am.* 2. *p.* 14; *Darlingt. fl. Cest. p.* 69. Biotia corymbosa, *DC. prodr.* 5. *p.* 265.

Stem 1½ – 2 feet high, smooth, often purple, corymbosely branched at the summit. Leaves 2 – 4 inches long, thin and nearly smooth, except a little pubescence on the veins underneath; uppermost ones sessile: petioles 1 – 2 inches long. Heads usually rather few, in a loose fastigiate corymb. Scales of the involucre pubescent on the margin; the rest smooth. Rays narrow. Pappus tawny. Achenia nearly smooth when mature, sparsely hairy when young.

Dry woods; common. *Fl.* July – August.

2. ASTER MACROPHYLLUS, *Linn.* *Large-leaved Aster.*

Stem stout, roughish-pubescent above, the corymbose branches rigid; leaves thickish, rough, closely serrate, somewhat acuminate; the radical and lower ones cordate, on slender petioles, the upper sessile or on margined petioles; heads in large corymbs; involucre nearly the length of the disk; scales rigid, oblong or ovate-oblong; rays (white or purplish) 12 – 15. — *Linn. sp.* (ed. 2.) *p.* 1232; *Michx. fl.* 2. *p.* 114; *Pursh, fl.* 2. *p.* 552; *Bigel. fl. Bost. p.* 314; *Beck, bot. p.* 187. Eurybia macrophylla, *Cass.; Nees, Ast. p.* 140 (excl. syn. Ait. divaric.); *Darlingt. fl. Cest. p.* 465; *Hook. fl. Bor.-Am.* 2. *p.* 14. Biotia macrophylla, *DC. prodr.* 5. *p.* 265.

Stem 2 – 3 feet high, with a large corymbose summit, striate-angled, often purplish. Radical leaves 4 – 8 inches long and 3 – 5 wide, roundish-cordate or cordate-oblong, coarsely crenate-serrate, the teeth mucronate, a little hairy on the veins underneath: petioles 3 – 8 inches long: cauline leaves ovate or oblong, the lower ones abruptly narrowed into a winged petiole. Heads much larger than in the preceding species; exterior scales ciliate; inner ones larger and membranaceous. Rays mostly white, sometimes pale blue. Pappus reddish-tawny.

Dry open woods; not rare. August – September.

Biotia Schreberi, glomerata and *latifolia*, DC. seem to be only slight varieties of this species.

§ 2. CALLIASTRUM, Torr. & Gr. *Scales coriaceous, with herbaceous spreading or squarrose tips: rays numerous* (12 – 30); *bristles of the pappus rigid, unequal, a portion of the inner ones more or less thickened toward the summit: achenia narrow, angled, slightly or scarcely compressed; cauline leaves rigid, sessile; the radical ones never cordate: heads large and showy.*

3. ASTER RADULA, *Ait.* (Plate L.) *Rasp-leaved Aster.*

Stem smooth, loosely corymbose at the summit; the branches few, nearly simple and naked; leaves oblong-lanceolate or ovate-lanceolate, more or less acuminate, mostly narrow toward the base, closely sessile, rough on both sides and somewhat rugose, sharply and rather remotely serrate; involucre campanulate-hemispherical, shorter than the disk; the scales oblong, rather obtuse, ciliate, appressed, with slightly spreading herbaceous tips; achenia smooth.—*Ait. Kew.* (ed. 1.) 3. *p.* 210; *Pursh, fl.* 2. *p.* 556; *Nees, Ast. p.* 43; *Hook. fl. Bor.-Am.* 2. *p.* 7; *DC. prodr.* 5. *p.* 230; *Torr. & Gr. fl. N. Am.* 2. *p.* 106. A. nudiflorus, *Nutt. gen.* 2. *p.* 157; *Darlingt. fl. Cest. p.* 462; *DC. l. c.*

Stem 2 – 3 feet high, with a few spreading branches at the summit, purplish. Leaves 2 – 3 inches long and from half an inch to an inch in breadth, hairy on the veins underneath, entire towards the base; the serratures mucronate, and usually salient. Heads seldom more than 6 – 10 on a plant, and often only 2 – 4, large; the peduncles 1 – 3 inches long, pubescent. Scales of the involucre smooth, except the ciliate margins, rather acute. Rays pale violet; the disk yellow, turning brownish. Achenia narrowly oblong, turgid, slightly compressed. Pappus reddish-tawny. Receptacle alveolate; the pits with a lacerate chaffy margin.

"On the high mountains of New-York and Pennsylvania." *Pursh.*

I introduce this plant into our flora on the authority of Pursh, having not yet detected it myself within the limits of the State. I have, however, found it in New-Jersey, and it occurs in Connecticut and other parts of New-England; always in low grounds, and rarely, I suspect, on mountains. *Fl.* August.

4. ASTER SPECTABILIS, *Ait.* (Plate LI.) *Showy Aster.*

Stem pulverulent-scabrous, glandularly pubescent and corymbose at the summit; leaves oblong-lanceolate, spreading, very rough; upper ones sessile, entire; lower and radical ones remotely appressed-serrate, narrowed below into a short petiole; corymb few-flowered, the branches rather short and leafy, 1 – 3-flowered; involucre hemispherical-campanulate, as long as the disk; scales numerous, somewhat equal in length, glandular-pubescent, linear-oblong or spatulate, acute, with large foliaceous squarrose tips; rays 20 or more; achenia slightly hairy.—*Ait. Kew.* (ed. 1.) 3. *p.* 209; *Pursh, fl.* 2. *p.* 554; *Nutt. gen.* 2. *p.* 157; *Beck, bot. p.* 184; *Nees, Ast. p.* 42; *Lindl. bot. reg. t.* 1527; *DC. prodr.* 5. *p.* 230; *Torr. & Gr. fl. N. Am.* 2. *p.* 108. A. grandiflorus, *Walt. fl. Car. p.* 209. A. elegans, *Willd. sp.* 3. *p.* 2042, in part.

Stem 12 – 18 inches high, sometimes assurgent, reddish, slender, slightly angular. Leaves 2 – 4 inches long, thick, very rough with minute elevated points; upper cauline ones often a little falcate. Peduncles 1 – 2 inches long. Heads about an inch in diameter. Scales loosely imbricated, one-nerved, with large green spreading tips. Rays very long, violet. Appendages of the style subulate, hispid. Pappus white, nearly equal. Achenia linear.

Pine woods, Queens County, Long Island (*Mr. Willis*). *Fl.* September – October. One of the most showy species of this immense genus.

§ 3. ASTER proper, Torr. & Gr. *Scales of the involucre with herbaceous or foliaceous tips, or the exterior ones entirely herbaceous: rays numerous: bristles of the pappus soft, capillary, nearly uniform, none of them thickened at the apex: achenia compressed.*

* *Heads (rather large) mostly solitary, terminating the spreading branchlets: scales of the involucre closely imbricated, rigid, with herbaceous mostly acute and somewhat spreading tips: achenia linear-oblong, many-striate, silky canescent: leaves auriculate-cordate and clasping the stem, entire, pubescent or scabrous; those of the branchlets very small.*

5. ASTER PATENS, *Ait.* *Spreading Aster.*

Stem pubescent, paniculate at the summit; leaves ovate-oblong or oblong-lanceolate, pubescent or rough, with ciliate and very rough margins, sometimes narrowed below the middle, auriculate-cordate and clasping, those of the divaricate slender branchlets very small; heads mostly solitary on the branchlets; scales of the involucre lanceolate, puberulent; achenia silky.— *Ait. Kew.* (ed. 1.) 3. *p.* 201; *Pursh, fl.* 2. *p.* 551; *Nees, Ast. p.* 49 (excl. syn. *Michx.*); *Beck, bot. p.* 183; *Darlingt. fl. Cest. p.* 463; *DC. prodr.* 5. *p.* 232; *Torr. & Gr. fl. N. Am.* 2. *p.* 114. A. undulatus, *Linn. sp. ed.* 2. *p.* 1228 (not of *hort. Cliff.*); *Ell. sk.* 2. *p.* 361. A. amplexicaulis, *Michx. fl.* 2. *p.* 114; *Bigel. fl. Bost. p.* 312.

var. *phlogifolius:* heads large, usually somewhat racemose on the short branches; involucre more lax and herbaceous; leaves much larger, membranaceous, pubescent underneath, scarcely rough, lanceolate or oblong-lanceolate, tapering to an acute point, usually contracted below the middle.— *Nees, l. c.; Darlingt. l. c.; Torr. & Gr. l. c.* A. phlogifolius, *Muhl. in Willd. sp.* 3. *p.* 2034; *Pursh, fl.* 2. *p.* 550; *Nutt. gen.* 2. *p.* 156; *DC. l. c.*

Stem 1 – 2½ feet high, rather slender, with widely spreading branches, usually rough. Leaves of the stem 1 – 3 inches long (in the *var.* often 4 – 5 inches); of the branches mostly 4 – 10 lines long, and bract-like. Heads 5 (in the *var.* 8) lines in diameter, either solitary or nearly so, at the extremity of the long slender branches; or several, arranged in a somewhat racemose manner on short but slender peduncles. Rays 20 or more, purplish-blue. Scales of the involucre minutely pubescent or hairy, and somewhat granulate; the inner ones acute or acuminate; exterior ones more obtuse and greener. Pappus ferruginous or tawny. Achenia very hairy.

Open woods, usually in dry soil; common. August – October.

** *Heads (middle-sized, showy) paniculate or somewhat racemose; scales closely imbricated, chartaceous and white (except the midnerve), with short appressed or slightly spreading green tips; rays bright blue; achenia smooth or nearly so, broadish, compressed, 2 – 5-ribbed: whole plant smooth, except the branchlets and rough margins of the leaves, often glaucous; cauline leaves lanceolate or oblong-ovate, thickish, sessile or clasping, entire or sparingly serrate; the radical ones ovate or oblong, tapering into a short margined petiole.*

6. ASTER LÆVIS, *Willd.* *Smooth Blue Aster.*

Smooth and more or less glaucous; stem loosely paniculate or somewhat corymbose at the summit; leaves lanceolate, ovate-lanceolate or oblong, coriaceous, very smooth, with rough margins entire or sparingly serrate; the lower narrowed towards the base, or tapering into a margined petiole; the upper clasping, and mostly auriculate or cordate at the base; those of the branches very small; scales of the involucre closely imbricated, appressed, rigid, lanceolate or broadly linear, with very abruptly acute or acuminate herbaceous tips; achenia shining, smooth, or pubescent with a few scattered hairs.—*Linn. sp.* 2. *p.* 876; *Bigel. fl. Bost. p.* 313; *Lindl. bot. reg. t.* 1500; *Beck, bot. p.* 185; *Darlingt. fl. Cest. p.* 468; *Torr. & Gr. fl. N. Am.* 2. *p.* 116. A. lævis, lævigatus, mutabilis, amplexicaulis, rubricaulis *and* cyaneus, *Nees, Ast. p.* 128 – 132; *DC. prodr.* 5. *p.* 245 & 246. A. rubricaulis, *Lam. dict. p.* 305. A. amplexicaulis, *Muhl. in Willd. sp. pl.* 3. *p.* 2046.

var. *cyaneus:* more glaucous; upper leaves cordate-clasping, oblong-lanceolate; scales of the involucre more numerous. *Torr. & Gr. l. c.* A. cyaneus, "*Hoff. phyt. bl. p.* 71. *t. B. f.* 1;" *Pursh, fl.* 2. *p.* 550; *Nees, l. c.; Lindl. bot. reg.* 1495. A. glaucus & politus, *Nees, synops. p.* 23.

Stem 2 – 4 feet high, very smooth, usually dark purplish and glaucous, more or less branched above. Radical leaves 2 – 5 inches long and an inch or rather more in breadth, varying from ovate- to spatulate-oblong, narrowed into a winged and often ciliate petiole: stem-leaves 2 – 4 inches long, often wider than the radical ones. Branches of the inflorescence rather rigid, few or numerous. Heads middle-sized. Scales rather coriaceous, whitish, with a green midrib and short rhombic green tips. Rays bright violet blue; the disk yellow, changing to dull purple. Pappus tawny when old.

Borders of woods, thickets, and banks of rivulets; very common. August – October. A very handsome, and variable but easily recognized species, remarkable for its very smooth stem and thickish shining leaves.

*** *Heads (middle-sized or small) paniculate or racemose; scales commonly appressed, chartaceous or somewhat membranaceous, with short green tips: achenia smooth or slightly pubescent: radical and lowest cauline leaves (large) cordate, with elongated naked or margined petioles; the upper also often petioled.*

7. ASTER UNDULATUS, *Linn.* *Various-leaved Aster.*

Pale, with a close grayish and more or less rough pubescence; stem paniculate or often racemose-thyrsoid at the summit; leaves ovate or ovate-lanceolate, somewhat woolly-pubescent underneath and rough above, acute, with the margins frequently undulate or slightly crenate-

serrate; the radical and lowest cauline cordate, on slender slightly margined petioles, which are usually dilated and clasping at the base; the others abruptly contracted into a short broadly winged clasping petiole, the uppermost cordate-clasping; involucre nearly the length of the disk; the scales linear, mostly acute, pubescent, closely imbricated.—*Linn. hort. Cliff. p.* 408, *and sp.* (ed. 1.) 2. *p.* 875?; *Pursh, fl.* 2. *p.* 551; *Nees, Ast. p.* 57; *Beck, bot. p.* 186; *Darlingt. fl. Cest. p.* 464; *Torr. & Gr. fl. N. Am.* 2. *p.* 119. A. diversifolius, *Michx. fl.* 2. *p.* 113; *Ell. sk.* 2. *p.* 361; *Bigel. fl. Bost. p.* 312; *DC. prodr.* 5. *p.* 234. A. sagittifolius *and* scaber, *Ell. l. c.*

Stem 1½ – 3 feet high, for the most part pyramidally branched at the summit; the branches and branchlets with small lanceolate and subulate leaves. Radical and lower cauline leaves 1½ – 4 inches long, varying from broadly ovate to ovate-lanceolate, sometimes minutely and softly pubescent on both sides, but usually rough above, remotely crenate or serrate; primordial ones often obtuse or reniform: petioles 1 – 3 inches long. Heads of flowers middle-sized, rather loosely disposed on the branches; the peduncles pubescent. Scales of the involucre nearly membranaceous, acute green at the tip, ciliate. Rays pale violet blue: disk yellow, turning purplish. Pappus tawny or brownish. Achenia 5-ribbed, slightly pubescent when young, nearly smooth when mature.

Dry woods and copses; very common. September – October.

8. ASTER CORDIFOLIUS, *Linn.* *Heart-leaved Aster.*

Stem often flexuous, racemose-paniculate at the summit; radical and lower cauline leaves cordate, acuminate, sharply serrate, on slender naked or margined and ciliate petioles; heads numerous or somewhat crowded, in oblong spreading or divaricate panicles; scales of the involucre closely imbricated, rather obtuse, appressed, with short green tips; achenia smooth. — *Linn. sp.* 2. *p.* 875; *Michx. fl.* 2. *p.* 114; *Pursh, fl.* 2. *p.* 552; *Ell. sk.* 2. *p.* 365; *Lindl. bot. reg. t.* 1597; *Bigel. fl. Bost. p.* 212; *Beck, bot. p.* 187; *Darlingt. fl. Cest. p.* 463; *Torr. & Gr. fl. N. Am.* 2. *p.* 120. A. paniculatus, *Ait. Kew.* (ed. 1.) 3. *p.* 207; *Pursh, l. c.* A. heterophyllus, *Willd. enum.* 2. *p.* 882. A. cordifolius, heterophyllus *and* paniculatus (chiefly), *Nees, Ast. p.* 52 & 55; *DC. prodr.* 5. *p.* 233.

Stem 1 – 3 feet high, smoothish or a little pubescent below, often somewhat hairy or roughish above. Leaves rather membranaceous, varying from broadly to narrowly ovate, usually smooth or only a little rough above and pubescent underneath, sometimes nearly smooth both sides, coarsely serrate; the radical and lower cauline ones 2 – 4 inches long, with the petioles slender and narrowly winged; the upper ones, and those of the branchlets, gradually diminishing in size to subulate bracts. Branches of the panicle open or contracted. Heads small, crowded on the spreading branches. Scales of the involucre small, whitish, green at the extremity, often purple at the apex, minutely pubescent-ciliate. Rays about 12, pale violet (or nearly white in shady places); disk yellowish, changing to purple.

Woods, generally in fertile soil; common. September.

9. ASTER SAGITTIFOLIUS, *Willd.* *Arrow-leaved Aster.*

Stem strict, smooth, thyrsoid-racemose above, the branches erect and somewhat rigid; leaves ovate-lanceolate, attenuate-acuminate, slightly ciliate; radical and lower cauline ovate-oblong, cordate at the base, on slender narrowly winged smoothish petioles; the uppermost lanceolate or nearly linear, acuminate at each end, sessile, often entire; heads numerous, in strict dense compound racemes, on very short peduncles; scales of the cylindraceous involucre linear-subulate, appressed at the base, rather loose below. — *Willd. sp.* 3. *p.* 2035?; *Nees, Ast. p.* 56?; *Hook. fl Bor.-Am.* 2. *p.* 9; *Torr. & Gr. fl. N. Am.* 2. *p.* 121. A. paniculatus, *Muhl.*; *Ell. sk.* 2. *p.* 365; *Darlingt. fl. Cest. p.* 464, not of *Ait. &c.*

Stem 2 – 4 feet high, with numerous erect branches above, the branchlets pubescent. Radical leaves 2 – 5 inches long and 1 – 2 broad, cordate or somewhat sagittate at the base, more or less pubescent, particularly underneath: petioles 2 – 6 inches in length: stem-leaves narrowed abruptly at the base into a winged petiole; uppermost gradually diminishing to subulate bracts. Heads rather small, numerous, in crowded racemes. Scales with slender pointed tips. Rays about 12, pale purple or sometimes nearly white: disk yellow, turning brownish purple.

Dry woods, in rich soil; Yates county (*Dr. Sartwell*). August – October. This, although a common species in the Western States, is rare in New-York and New-England.

**** *Heads (small and numerous) paniculate-racemose; scales of the campanulate or hemispherical involucre closely imbricated, rigid, the coriaceous and whitish base appressed, with abrupt mostly squarrose or spreading herbaceous tips: achenia minutely pubescent: rays white or pale purple: stems much branched or diffuse: cauline leaves rigid, sessile, linear-lanceolate or subulate, entire; the radical and lowermost oblanceolate or spatulate, sometimes serrate.*

10. ASTER ERICOIDES, *Linn.* *Heath-like Aster.*

Smooth or slightly hairy, racemose-compound; peduncles mostly unilateral on the virgate spreading branches; leaves rather rigid; the radical and lowest cauline oblanceolate or oblong-spatulate, tapering into a short margined petiole, often serrate, the others linear-lanceolate and linear-subulate; scales of the involucre broadest at the base, with a small acute or abruptly acuminate tip, the exterior ones subulate. — *Linn. sp.* 2. *p.* 875; *Willd. sp.* 3. *p.* 2027; *Pursh, fl.* 2. *p.* 546; *Ell. sk.* 2. *p.* 348, not of *Lam. & Michx; Torr. & Gr. fl. N. Am.* 2. *p.* 123. A. ericoides & glabellus, *Nees, Ast. p.* 107; *DC. prodr.* 5. *p.* 242. A. sparsiflorus, *Michx. fl.* 2. *p.* 242; *Willd. enum.* 2. *p.* 880 (in part), not of *Pursh.* A. tenuifolius, *Willd. sp.* 3. *p.* 2026 (excl. syn.); *Nutt. gen.* 2. *p.* 155; *Darlingt fl. Cest. p.* 467. A. tenuifolius *and* ericoides, *Muhl. cat. p.* 77. A. dumosus, *Hoff.*; *Willd. enum.* 2. *p.* 880.

Stem 1 – 3 feet high, much branched often from the base, and resembling a small bush; the stem and branches rigid and brittle. Leaves very numerous; radical and lower cauline ones 2 – 4 inches long, and often half an inch or more in breadth; those of the branches and branchlets gradually becoming very small and narrow, with a subulate point. Heads 3 – 4 lines in diameter, solitary on the small leafy branchlets or pedicels, which are mostly arranged

in a secund and sometimes crowded manner on the principal branches. Involucres mostly hemispherical, or somewhat turbinate. Scales in several series : a few of the outermost ones resembling the small leaves of the branchlets ; inner ones a little ciliate, with green rhomboid acute tips, which are loose and somewhat spreading. Rays 15 – 25, white or pale purple ; disk purplish when old. Achenia minutely pubescent.

Old fields and barren soils ; common. August – October. This plant presents many varieties in size, branching, length and breadth of leaves, etc., depending on diversities of soil and situation.

11. ASTER MULTIFLORUS, *Ait.* *Many-flowered Aster.*

Grayish with a dense pubescence, or hairy ; stem diffusely racemose-compound ; the heads very numerous and crowded, somewhat unilateral ; leaves crowded, linear, entire, not tapering at the base, serrulate-scabrous on the margin, spreading or reflexed ; scales of the involucre spatulate, ciliate, with spreading or recurved tips, the exterior ones obtuse.—*Ait. Kew.* (ed. 1.) 3. *p.* 203 ; *Willd. sp.* 2027 ; *Pursh, fl.* 2. *p.* 546 ; *Ell. sk.* 2. *p.* 249 ; *Nees, Ast. p.* 114 ; *Lindl. in DC. prodr.* 5. *p.* 243, *and in Hook. fl. Bor.-Am.* 2. *p.* 13 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 124. A. ericoides, *Lam. dict. p.* 304 ; *Michx. fl.* 2. *p.* 313. A. ericoides, *var.* multiflorus, *Pers. syn.* 2 *p.* 443. A. ciliatus, *Muhl. in Willd. sp.* 3. *p.* 2027. A. dumosus, *DC. prodr.* 5. *p.* 241.

Whole plant usually whitish or hoary from its dense pubescence, but sometimes rather smooth. Stem 1 – 2 feet high, rigid, much branched and bushy ; the branches crowded with small leaves. Leaves mostly somewhat clasping ; the cauline ones an inch or rather more in length and 1 – 2 lines wide, rather obtuse ; those of the branches about half an inch long. Heads somewhat racemose and unilateral, or (in sterile soils) terminal and nearly solitary ; the pedicels or branchlets covered with small leaves. Involucre about 3 lines in diameter, shorter than the disk ; the scales commonly spatulate and obtuse, whitish and appressed, with green spreading tips ; the outer ones broader. Rays 10 – 15, white or with a tinge of purple ; disk-flowers purplish when old. Achenia minutely pubescent, turgid. Pappus somewhat tawny.

Dry sterile fields, particularly in gravelly soil ; not rare. September – November. The ordinary form of this species is easily recognized by its hoary appearance, bushy much branched stem with small white flowers, and small rather obtuse crowded leaves which are not narrowed at the base.

***** *Heads (middle-sized or small) mostly racemose: scales of the involucre imbricated and unequal in length, membranaceo-herbaceous, with short appressed or somewhat spreading (not squarrose) greenish tips; rays usually pale or white, often small: stems at length much branched, racemose or paniculate: leaves serrate or entire (the radical ones spatulate, obovate or oblong); the cauline sessile, usually tapering at the base.*

12. ASTER DUMOSUS, *Linn.* *Bushy Aster.*

Stem smooth or slightly scabrous-pubescent, racemosely branched or decompound; the heads solitary at the extremity of the spreading branchlets, or rarely somewhat racemed; leaves linear, crowded, smooth with rough margins, sessile; the lower cauline ones linear-lanceolate, often remotely serrate with small and sharp appressed teeth; those of the branchlets small and mucronulate; scales of the involucre linear-spatulate, obtuse (or sometimes abruptly and slightly mucronulate), closely imbricated in 4 – 6 series. — *Torr. & Gr. fl. N. Am.* 2. *p.* 128.

var. 1. *verus:* paniculate-racemose; the branchlets clothed with numerous linear-oblong and obtuse (obscurely mucronulate) small and spreading leaves; the upper cauline leaves frequently obtuse. *Torr. & Gr. l. c.* A. dumosus, *Linn. sp.* 2. *p.* 873; *Bigel. fl. Bost. p.* 311.

var. 2. *strictior:* leaves sparingly paniculate or racemose-compound; leaves usually more or less acute, the lower ones often slightly serrate; those of the short branches rather numerous, scarcely spreading. *Torr. & Gr. l. c.*

var. 3. *subracemosus:* stem racemose-compound; the heads often somewhat racemed; leaves mostly acute, the cauline ones often remotely serrulate; those of the branches more scattered, slender and proportional, acute; scales of the involucre rather narrower, often slightly acute. *Torr. & Gr. l. c.* A. dumosus, *Nees, Ast. p.* 105. A. foliosus, *Ait. Kew.* (ed. 1.) 3. *p.* 202 ?

Stems 1 – 3 feet high. Lower leaves 2 – 3 inches long, 2 – 5 lines wide, diminishing in size to the branchlets, where they are 2 – 3 lines long and very narrow. Heads mostly about one-fourth of an inch in diameter, scattered. Exterior scales much shorter than the inner ones. Rays 20 – 30, short, pale purple or nearly white. Achenia slightly and minutely pubescent.

Shady bushy places, and in open woods; common. August – October. A polymorphous species, of which several varieties, besides those here described, occur in other parts of the United States.

13. ASTER TRADESCANTI, *Linn.* *Tradescant's Aster.*

Stem slender, often somewhat pubescent, much branched; the (small) heads numerous, usually densely racemose on the erect-spreading or at length diverging virgate branches, often unilateral; leaves sessile, smooth, with rough margins; the cauline ones lanceolate-linear, elongated, mucronate-acute or acuminate, remotely serrate in the middle with fine and sharp teeth; the upper, and those of the branches, successively shorter and usually entire, mucronu-

late; those of the branchlets oblong-linear, small; scales of the involucre narrowly linear, acute or acutish, imbricated in 3 – 4 series, appressed, the innermost rather shorter than the disk.— *Linn. sp.* 2. *p.* 876; *Michx. fl.* 2. *p.* 115; *Pursh, fl.* 2. *p.* 556; *Ell. sk.* 2. *p.* 538; *Nees, Ast. p.* 103; *DC. prodr.* 5. *p.* 241; *Torr. & Gr. fl. N. Am.* 2. *p.* 129. A. vimineus, *Lam. dict. p.* 303.

var. *fragilis:* cauline leaves, except the lowermost, minutely appressed-serrulate or entire, usually shorter; heads more scattered on the branchlets. *Torr. & Gr. l. c.* A. fragilis, *Willd. sp.* 3. *p.* 2051; *Nees, Ast. p.* 102. A. tenuifolius, *Ell. sk.* 2. *p.* 347, not of *Linn.*

Stem 2 – 4 feet high, bushy, slightly pubescent often in lines, with numerous slender branches which at first are somewhat erect, but at length widely spreading. Lower cauline leaves 3 – 4 inches long and 3 – 4 lines wide, with minute remote teeth. Heads small, numerous, solitary or 2 – 4 together, on short leafy branchlets or peduncles which are arranged in a racemose manner along the larger branches. Scales of the hemispherical-campanulate involucre acutish, slightly pubescent, purplish-green, with a pale nearly smooth margin. Rays about 20, pale purple or almost white; the disk turning purplish. Achenia slightly pubescent. Pappus a little tawny. In the var. *fragilis*, the branches are more slender, the branchlets larger, more paniculate and looser, and the leaves smaller and more crowded.

Fields, and bushy places along rivulets; not rare. August – October.

14. ASTER MISER, *Linn.* *Starved Aster.*

Stem mostly pubescent or hairy, racemosely branched or compound; the numerous heads racemose along the spreading or divaricate branches; leaves lanceolate or oblong-lanceolate, sessile, attenuate or acuminate at each end, sharply serrate in the middle; the radical ones spatulate-lanceolate or oval, tapering into a petiole; those of the branches and branchlets successively smaller and often entire; scales of the involucre linear, imbricated in 3 or 4 series (the exterior much shorter, the inner about the length of the disk), acute or rather obtuse; rays short and often inconspicuous. — *Linn. sp.* 2. *p.* 887?; *Torr. & Gr. fl. N. Am.* 2. *p.* 130. A. miser, divergens, diffusus *and* pendulus, *Ait. Kew.* (ed. 1.) 3. *p.* 205, and of most succeeding authors.

var. 1. *miserrimus;* stem and elliptical-lanceolate or cuneiform-lanceolate leaves more or less scabrous or pubescent; the flowering branches short, seldom divergent; scales of the involucre narrowly linear or linear-lanceolate, acute. *Torr. & Gr. l. c.* A. miser (excl. γ.) *Nees, Ast. p.* 111.

var. 2. *glomerellus:* mostly cinereous-pubescent or rough; leaves oblong-lanceolate, elliptical-lanceolate or cuneiform-oblong, rough above, mostly short; heads glomerate-spicate at the summit of the stem, or on divergent branches; scales of the involucre linear, obtusish or abruptly acute. *Torr. & Gr. l. c.* A. miser, *Darlingt. fl. Cest. p.* 466. A. diffusus, *Muhl.; Nees, Ast.* (partly).

var. 3. *diffusus:* stem pubescent or smooth below, much branched; leaves nearly smooth (mostly a little rough above, and sometimes sparsely pubescent underneath), lanceolate, oblong-

lanceolate, or the lowermost often oblong-oval; branches diffuse, mostly elongated, divergent, recurved-spreading or divaricate; heads loosely or densely racemose; scales of the involucre linear, acute or acutish. *Torr. & Gr. l. c.* A. diffusus, divergens, pendulus *and* parviflorus, *Nees, Ast. p.* 99, *&c.*

var. 4. *hirsuticaulis:* stem and midrib of the narrowly lanceolate elongated leaves more or less hairy; heads racemose or spicate on short spreading or diverging branchlets, the uppermost in axillary glomerules much shorter than the leaves; scales of the involucre very narrowly linear, acute. *Torr. & Gr. l. c.* A. hirsuticaulis, *Lindl. in DC. prodr.* 5. *p.* 242.

An extremely variable species, having the general appearance of the others belonging to this group. Like them it presents every diversity in size, branching, length of the leaves, etc. The heads are small, and usually very numerous. The involucre is campanulate-turbinate, and the scales have a green tip, and are nearly smooth. Rays 10 – 16, linear-lanceolate, white or very pale purple. Disk-flowers purplish, few, large. Achenia a little pubescent. Pappus dirty white.

Old fields, thickets, etc.; very common. August – October.

15. ASTER SIMPLEX, *Willd.* *Willow-leaved Aster.*

Stem smooth, racemose-decompound; the branches somewhat corymbose at the summit; branchlets bearing few middle-sized heads; leaves lanceolate, acuminate, very smooth, rough on the margin, the lower (and sometimes the upper) ones serrate; scales of the involucre loosely imbricated, linear-subulate (*Nees*).—*Willd. enum.* 2. *p.* 887; *Nees, Ast. p.* 91; *DC. prodr.* 5. *p.* 239; *Torr. & Gr. fl. N. Am.* 2. *p.* 132. A. salicifolius, *Darlingt. fl. Cest. p.* 467.

Stem varying from a foot and a half to six feet in height, often (particularly the branchlets) pubescent in lines, and striped with green. Leaves 2 – 5 inches long and from 3 – 8 lines wide, thin, remotely serrate with appressed serratures, tapering to the base, sessile or a little clasping. Heads loosely racemose, or a little crowded on the short branchlets. Involucre nearly half an inch in diameter, campanulate-obovoid; the scales smooth, acute, green with a pale margin. Rays 20 or more, blue or bluish white; disk-flowers dull purple. Achenia minutely pubescent.

Margin of swamps, etc.; rather common. August – October.

16. ASTER TENUIFOLIUS, *Linn.* *Slender-leaved Aster.*

Nearly smooth; stem paniculate-compound, or the branches and (rather small) heads often slightly racemose; leaves narrowly lanceolate or lanceolate-linear, mostly elongated, attenuate-acuminate, rough on the margin, the lower ones usually sharply serrate in the middle; those of the branches and branchlets entire, attenuate, gradually reduced in size; scales of the ovoid-hemispherical involucre linear, acute, closely imbricated below, the points loose or a little spreading; rays rather short.—*Linn. sp.* 2. *p.* 873; *Nees, Ast. p.* 119; *DC. prodr.* 5.

p. 244; *Torr. & Gr. fl. N. Am.* 2. *p.* 132. A. polyphyllus, *Willd. enum.* 2. *p.* 888. A. junceus, *Pursh, fl.* 2. *p.* 557.

var. 1. *ramosissimus:* paniculately much branched; the branches and branchlets rigid, somewhat erect, roughish-pubescent; leaves often rough; scales of the involucre more closely imbricated and numerous, linear-subulate. *Torr. & Gr. l. c.* A. tenuifolius, *γ. Nees, l. c.*

var. 2. *bellidiflorus:* paniculate-compound, rather strict; the branchlets and heads often somewhat racemose; leaves smooth, or frequently rough above; scales of the involucre narrowly linear, acute, loosely imbricated. *Torr. & Gr. l. c.* A. bellidiflorus, *Willd. enum.* 2. *p.* 886; *Nees, Ast. p.* 97; *DC. prodr.* 5. *p.* 240; *Lindl. in Hook. fl. Bor.-Am.* 2. *p.* 11. A. dracunculoides, *Willd. sp.* 3. *p.* 2050. A. leucanthemos, *Desf.; Nees, l. c.; DC. l. c.*

Stem 2 – 5 feet or more in height. Leaves variable in length and breadth, sometimes broadly lanceolate, either sharply and often coarsely serrate, or nearly entire, narrowed at the base, finely ciliolate on the margin. Heads middle-sized. Scales of the involucre acute or acuminate, greenish, with a narrow pale margin. Rays numerous, considerably shorter than the disk, pale purple or nearly white.

Low grounds, etc. August – October.

17. ASTER GREENII, *Torr. & Gr.* *Green's Aster.*

Stem very smooth, racemosely branched or compound; leaves nearly all remotely adpressed-serrulate, smooth, acute or acuminate, rough above; the cauline ones narrowly lanceolate, elongated, slightly clasping (not dilated) at the base, spreading; heads (hardly middle-sized) simply racemose on the leafy branches, on very short bracteate peduncles; involucre campanulate, somewhat shorter than the disk; the scales linear-lanceolate, acute, rather closely imbricated in nearly 3 series, the exterior somewhat shorter. — *Torr. & Gr. fl. N. Am.* 2. *p.* 134.

Stem . . . . feet high. Radical leaves not seen; cauline ones 3 – 5 inches long and about half an inch broad, of rather firm texture, more or less rough on the upper surface; those of the branches nearly uniform in size and shape, and from half an inch to an inch in length. Heads racemose, or sometimes rather crowded along the slender branches. Scales of the involucre pale, with a greenish midnerve. Rays rather short, broadly linear, purplish?; the disk turning to reddish-purple. Achenia finely pubescent.

Fields. Schenectady (*Mr. Tuckerman*).

****** *Heads (middle-sized or large, showy) mostly corymbose or paniculate: scales of the involucre equal or somewhat unequal, more or less imbricated, with loose or spreading herbaceous or foliaceous tips, the exterior frequently entirely herbaceous: achenia pubescent or smooth: rays usually large and numerous, blue or purple: cauline leaves sessile, the upper more or less clasping.*

18. ASTER LAXUS, *Willd.* *Loosely-branched Aster.*

Stem smooth or a little pubescent in lines, racemose-compound or decompound, the branches loose and corymbose at the summit, the branchlets elongated; leaves narrowly lanceolate, acuminate, the margin (and often the upper surface) rough, the lower ones somewhat serrate; those of the branchlets linear, obliquely spreading; scales of the involucre broadly linear, loose, a little squarrose-spreading.—*Willd. enum.* 2. *p.* 886; *Nees, Ast. p.* 95; *DC. prodr.* 5. *p.* 240; *Torr. & Gr. fl. N. Am.* 2. *p.* 135.

Stem apparently 3 – 4 feet high, with numerous rigid ascending branches, purplish. Radical leaves not seen; cauline ones 2 – 4 inches long and about half an inch broad; those of the branchlets much smaller, broad and a little clasping at the base. Heads loosely corymbose, about as large as in *A. puniceus*. Scales of the involucre herbaceous, green, rather acute; the exterior ones (particularly in the terminal heads) at length squarrose. Rays very numerous (40 – 50), narrow, purplish-blue.

Island of New-York, near the Deaf and Dumb Asylum (*Mr. Brownne*).

19. ASTER ELODES, *Torr. & Gr.* *Blue Smooth Marsh Aster.*

Very smooth; stems simple or somewhat branched, flexuous, slender, loosely somewhat paniculate at the summit; leaves varying from lanceolate to linear, somewhat coriaceous, narrowed at each end, nearly entire or sparingly appressed-serrulate, shining, the upper ones somewhat clasping by a narrow base; scales of the hemispherical involucre spatulate-linear, acute, mucronulate, with recurved-spreading herbaceous tips; achenia smooth.—*Torr. & Gr. fl. N. Am.* 2. *p.* 136. A. elodes, *Nutt. gen.* 2. *p.* 155, not of *Ait.*

Stem 1 – 2½ feet high, often simple, with a few flowers in a loose paniculate raceme at the summit; at other times somewhat compoundly branched above, with the flowers more numerous; and more rarely (especially in the narrowest-leaved forms) fastigiately branched. Leaves 2 – 6 inches long, varying from little more than a line to 6 or 8 lines in breadth, the largest ones usually occurring on the specimens with simple stems, often tapering below, and then suddenly dilated a little at the base; those of the flowering branches usually 1 – 2 inches long and few in number, but in the much branched forms often very small and rather numerous. Heads large and showy, sometimes only very few or almost solitary, and seldom numerous, solitary on the rather short branchlets. Involucre more than half an inch in diameter. Scales ciliate on the margin, the inner ones usually more or less tinged with purple. Rays 25 – 30, large, deep blue or violet. Disk-flowers yellow, sometimes turning purplish.

Deep swamps, Long Island. August – October. A very handsome species, common in the sandy swamps of New-Jersey, but not found hitherto in the State of New-York, except on Long Island. It is, perhaps, too near *A. longifolius*, Lam.

20. ASTER PUNICEUS, *Linn.* *Hispid Tall Aster.*

Stem hispid, stout, paniculate above; leaves oblong-lanceolate, acuminate, rather coarsely serrate in the middle, very rough above and on the midrib underneath, clasping by a more or less auriculate base; heads (rather large) somewhat crowded in a racemose or paniculate manner towards the summit of the leafy branches; scales of the involucre narrowly linear, tapering to a long acute point, loose and somewhat spreading, nearly equal in about 2 series, as long as the disk. — *Linn. sp.* 2. *p.* 875; *Michx. fl.* 2. *p.* 115; *Willd. sp.* 3. *p.* 2040; *Pursh, fl.* 2. *p.* 554; *Bigel. fl. Bost. p.* 312; *Hook. fl. Bor.-Am.* 2. *p.* 10; *Darlingt. fl. Cest. p.* 465; *DC. prodr.* 5. *p.* 236; *Torr. & Gr. fl. N. Am.* 2. *p.* 140. A. amœnus *and* hispidus, *Lam. dict.* 1. *p.* 306.

Stem 3 – 6 feet high, usually purplish, hispid with short strong prickly hairs, paniculately or corymbosely much branched above. Leaves often almost equally rough on both surfaces; the cauline ones 3 – 5 inches long, and varying from rather narrowly lanceolate to nearly oblong, usually a little narrow below nearly to the base, which is clasping-auriculate; leaves of the branches and branchlets of the same form as the cauline, but smaller. Heads (with the rays expanded) an inch or more in diameter, on nearly naked pedicels. Scales very acute, the inner ones often a little longer than the disk. Rays numerous, violet-purple, often pale. Achenia somewhat pubescent.

Low wet thickets; common. September – October. A coarse well-marked species. There are varieties (but I have not found them in New-York) in which the stem is smoothish, particularly below, with the exterior scales of the involucre rather broad and more foliaceous. To these belong *A. vimineus* and *A. firmus* of authors.

21. ASTER PRENANTHOIDES, *Muhl.* *Prenanthes-like Aster.*

Stem pubescent or hairy in decurrent lines, loosely paniculate-corymbose at the summit; leaves spatulate-lanceolate or lanceolate-oval, incisely serrate in the middle, conspicuously acuminate, abruptly tapering into a long narrow base like a winged petiole, with a cordate or auriculate clasping insertion, rough above, smooth underneath; heads (rather large) on short rigid spreading peduncles; scales of the hemispherical involucre lanceolate-linear or spatulate-linear, acute or acuminate, imbricated in 3 – 4 series, with recurved-spreading herbaceous summits.—*Muhl. in Willd. sp.* 3. *p.* 2046; *Nees, Ast. p.* 61; *Beck, bot. p.* 185; *Darlingt. fl. Cest. p.* 465; *DC. prodr.* 5. *p.* 234; *Torr. & Gr. fl. N. Am.* 2. *p.* 142.

Stem 1 – 4 feet high, sparingly branched; the pubescence commonly in lines, with the intervals smooth. Leaves 3 – 6 inches or more in length and an inch or more in breadth, entire and remarkably contracted below, with a conspicuous dilated and clasping base, of a rather thin texture. Heads rather few, loosely clustered towards the extremity of the branches; the upper ones and those of the branches smaller, and usually less narrowed at the base. Scales of the involucre smooth, or slightly ciliate on the margin; the exterior ones often spatulate and green. Rays 20 or more, pale violet or lilac, sometimes nearly white. Pappus unequal. Achenia somewhat hispid.

Moist woods and thickets. Western part of the State (*Dr. Knieskern and Dr. Sartwell*). September – October.

******* *Heads (large and showy) terminating the corymbose or paniculate branches: scales of the involucre numerous, in several series, somewhat equal, the elongated foliaceous portion spreading or squarrose: achenia villous: rays numerous, purple or violet: leaves lanceolate or linear-oblong, mostly entire, sessile, often partly clasping: branchlets and involucre glandular or glandular-pubescent.*

22. ASTER NOVÆ-ANGLIÆ, *Linn.* *New-England Aster.*

Stem stout, hispid, corymbose at the summit; the branchlets and involucre somewhat viscid; leaves very numerous, linear-lanceolate, auriculate-clasping, entire, roughish-pubescent; scales of the involucre subulate-linear, glandularly viscid, loose, nearly equal, as long as the disk.—*Linn. sp.* 2. *p.* 875; *Michx. fl.* 2. *p.* 113; *Pursh, fl.* 2. *p.* 549; *Nutt. gen* 2. *p.* 156; *Ell. sk.* 2. *p.* 351; *Lindl. bot. reg. t.* 183; *Bigel. fl. Bost. p.* 310; *Nees, Ast. p.* 46; *Hook. fl. Bor.-Am.* 2. *p.* 8; *Beck, bot. p.* 182; *Darlingt. fl. Cest. p.* 462; *DC. prodr.* 5. *p.* 233; *Torr. & Gr. fl. N. Am.* 2. *p.* 144. A. amplexicaulis, *Lam. dict.* 1. *p.* 304, not of *Willd.* A. spurius, *Willd. sp.* 3. *p.* 2032.

Stem 3 – 6 feet high, often brownish purple, clothed with white spreading hairs, and the upper part somewhat viscid with a terebinthine secretion. Leaves 2 – 4 inches long and 4 – 6 lines wide, gradually tapering to the summit, the auriculate base folding round the stem. Heads (including the rays) more than an inch and a half in diameter, arranged in a loose more or less compound thyrsus or corymb. Involucre hemispherical; the scales very narrow, glandularly rough and viscid, more or less tinged with brownish-purple. Rays very numerous (40 or more), bright violet-purple: disk-flowers yellow, becoming purplish when old. Achenia very hairy. Pappus rather rigid, dirty reddish-white.

Low grounds, borders of fields, etc., sometimes in rather dry situations; common. September – October. This is one of the handsomest species of the genus, and also one of the easiest to be recognized.

§ 4. ORTHOMERIS, Torr. & Gr. *Scales of the regularly imbricated involucre with membranaceous or scarious margins, destitute of herbaceous tips or appendages, often carinate, mostly unequal: appendages of the style lanceolate, sometimes oblong or triangular: receptacle alveolate (flat): bristles of the pappus capillary, usually unequal.*

23. ASTER ACUMINATUS, *Michx.* *Acuminate Aster.*

Stem simple, flexuous, pubescent, roughish, loosely and paniculately corymbose at the summit; peduncles slender, naked; leaves broadly cuneiform-lanceolate, membranaceous, conspicuously acuminate, coarsely dentate-serrate above, the narrowed base entire, smooth above, more or less pubescent underneath; scales of the involucre linear, loosely imbricated, acuminate; achenia glandular.—*Michx. fl.* 2. *p.* 109; *Pursh, fl.* 2. *p.* 555; *Bigel. fl. Bost. p.* 312; *Hook. bot. mag. t.* 2707, *and fl. Bor.-Am.* 2 *p.* 9, not of *Nees; Beck, bot. p.* 184; *Torr. & Gr. fl. N. Am.* 2. *p.* 157. A. diffusus, *var.* acuminatus, *Pers. syn.* 2. *p.* 447. Diplostephium acuminatum, *DC. prodr.* 5. *p.* 273.

Stem 12 – 18 inches high, rather stout, angular, more or less pubescent or sometimes hairy. Leaves 3 – 6 inches long and 1 – 2 inches wide, tapering from about the middle to a cuneate entire base, pinnately veined, the teeth mucronate and spreading. Heads commonly few, in a loose spreading paniculate corymb. Involucre nearly half an inch in diameter: scales pale green or tinged with purple, tapering to a long narrow point, the outer ones much smaller. Rays 12 – 18, elongated, white. Achenia narrowly oblong, clothed with a short glandular pubescence.

In fertile woods, and on mountains; rather common in the northern and southwestern counties, and on the Hudson as far south as Catskill. August – October.

24. ASTER PTARMICOIDES, *Torr. & Gr.* (Plate LII.) *Ptarmicoid Aster.*

Stem simple, rough above; leaves linear-lanceolate, rigid, acute, somewhat shining, very rough on the margin, those of the stem entire; the lower ones elongated, often slightly and remotely toothed, tapering to the base or somewhat petioled; corymb fastigiate; scales of the hemispherical involucre closely imbricated, rather obtuse, shorter than the disk. — *Torr. & Gr. fl. N. Am.* 2. *p.* 160. Chrysopsis alba, *Nutt. gen.* 2. *p.* 152. Dœlingeria ptarmicoides, *Nees, Ast. p.* 183. Diplopappus albus, *Hook. fl. Bor.-Am.* 2. *p.* 21; *Gray in ann. lyc. N. York,* 3. *p.* 226. Heleastrum album, *DC. prodr.* 5. *p.* 264. Eucephalus albus, *Nutt. in trans. Amer. phil. soc.* (n. ser.) 7. *p.* 299.

Stems 6 – 18 inches high, commonly several from a somewhat woody rhizoma. Leaves usually a little ciliate at the base, more or less rough; the lower and radical ones 3 – 6 inches long and 2 – 4 lines wide, with a long tapering base, and often distinctly petiolate. Heads rather small, in a spreading flat-topped corymb. Scales of the involucre narrowly oblong, nearly smooth, greenish, in 3 – 4 unequal series. Rays 12 – 18, white. Pappus soft and white; the longer bristles thickened at the apex.

Rocky banks of the Black River, near Watertown, Jefferson county. July – September. A rare and singular species, which has been referred to six different genera, but is a genuine Aster.

§ 5. OXYTRIPOLIUM, DC.; Torr. & Gr. *Scales of the involucre membranaceous or chartaceous with membranaceous margins, destitute of herbaceous tips, usually very acute, the exterior passing into scale-like bracts: receptacle somewhat alveolate: bristles of the pappus soft and capillary, nearly equal: achenia compressed, often striate: leaves thickish or succulent, narrow and entire. —Annual or perennial; mostly smooth; natives of salt marshes.*

25. ASTER FLEXUOSUS, *Nutt.* *Perennial Salt-marsh Aster.*

Stem very smooth, flexuous, sparingly branched, the branches mostly terminated by (large) solitary heads; stem-leaves linear, the lower ones lanceolate-linear, elongated, fleshy, acute, tapering to the base, those of the branchlets subulate; scales of the campanulate involucre

lanceolate-acuminate; rays numerous, rather short; achenia slender, sparingly pubescent, 5-striate. — *Nutt. gen.* 2. *p.* 154; *Ell. sk.* 2. *p.* 343; *Torr. & Gr. fl. N. Am.* 2. *p.* 161. A. sparsiflorus, *Pursh, fl.* 2. *p.* 547; *Torr. compend. p.* 293; *Beck, bot. p.* 182. Tripolium flexuosum, *Nees, Ast. p.* 155; *DC. prodr.* 5. *p.* 254.

Stem a foot or eighteen inches high, a little angular, sometimes simple except at the summit, but usually producing a few and somewhat spreading short branches from towards the base upward. Leaves 2 – 4 inches long and 1 – 2 lines wide, sessile, narrowed below, but clasping at the base. Peduncles or branchlets bearing 1 – 2 heads, clothed with small bract-like leaves. Scales of the involucre chartaceous, often tinged with purple. Rays about 20, pale purple, about one-third longer than the involucre, in a single series. Pappus reddish.

Salt marshes; rather common in the vicinity of New-York and on Long Island. September – October.

26. ASTER LINIFOLIUS, *Linn.* *Annual Salt-marsh Aster.*

Annual; very smooth; stem erect, racemosely branched from the base; the branches erect-spreading, bearing racemose-paniculate (small) heads: leaves lanceolate-linear, acuminate, narrowed at the base; scales of the cylindraceous involucre linear-subulate; ray-flowers scarcely exceeding the pappus; achenia minutely pubescent.—*Linn. sp.* 2. *p.* 874; *Torr. & Gr. fl. N. Am.* 2. *p.* 162, not of *Ait. &c.* A. subulatus, *Michx. fl.* 2. *p.* 111 (partly); *Nutt. gen.* 2. *p.* 154; *Ell. sk.* 2. *p.* 345; *Bigel. fl. Bost. p.* 309; *Torr. compend. p.* 292; *Beck, bot. p.* 181. Tripolium subulatum, *Nees, Ast. p.* 156 (in part); *DC. prodr.* 5. *p.* 254 (partly).

Stem usually about a foot and a half high, striate-angular, mostly purplish, generally much branched, hollow. Leaves 2 – 6 inches long, somewhat fleshy, tapering at each end, 2 – 4 lines wide, somewhat clasping. Scales very acute, thin, green tinged with purple. Ray-flowers numerous and very short, somewhat in two series, pale-purple or nearly white. Achenia oblong.

Salt marshes, in the neighborhood of New-York, and on Long Island; common. September – November.

9. DIPLOPAPPUS. *Cass.; Torr. & Gr. fl. N. Am.* 2. *p.* 180. *DIPLOPAPPUS.*

DIPLOSTEPHIUM, *Kunth.* — DIPLOPAPPUS & DIPLOSTEPHIUM, *Cass. & D.C.* — DIPLOSTEPHIUM & DŒLLINGERIA, in part, *Nees.* — CHRYSOPSIS, § 2. *Nutt.* partly.

[From the Greek, *diploos*, double, and *pappos*, pappus.]

Heads many-flowered; the ray-flowers usually few (8 – 12), in a single series; those of the disk tubular, perfect. Scales of the involucre imbricated, lanceolate or subulate, destitute of herbaceous or squarrose tips. Receptacle flat, somewhat alveolate; the alveoli toothed. Appendages of the style subulate or lanceolate, rarely short. Achenia more or less compressed. Pappus double; the interior of rough copious often unequal capillary bristles, as

long as the corolla ; the exterior very short, setaceous or subulate. — Perennial herbs or suffruticose plants, of various habit, with alternate, mostly entire sessile leaves. Heads corymbose, or terminating the simple branches. Rays blue, purple or white ; the corolla of the disk yellow, rarely turning to purple.

§ 1. IANTHE, Torr. & Gr. *Bristles of the inner pappus not clavellate or thickened at the tip ; the exterior setaceous : achenia villous or silky, linear, somewhat compressed : involucre about the length of the disk : leaves crowded, linear, rigid, one-nerved, mucronate, with very rough margins : heads terminating the simple branches.*

1. DIPLOPAPPUS LINARIIFOLIUS, *Hook.* *Narrow-leaved Diplopappus.*

Stems strict, usually several from one root, or branching at the base ; leaves linear, rigid, spreading ; scales of the turbinate involucre rigid, carinately one-nerved, the exterior short and acute, the interior mostly obtuse ; achenia silky villous. — *Hook. fl. Bor.-Am.* 2. *p.* 21 ; *Darlingt. fl. Cest. p.* 743 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 181. D. linariifolius *and* rigidus, *Lindl. in DC. prodr.* 5. *p.* 277. Diplostephium linariifolium, *Nees, Ast. p.* 199. Chrysopsis linariifolia, *Nutt. gen.* 2. *p.* 152. Aster linariifolius, *Linn. sp.* 2. *p.* 874 ; *Michx. fl.* 2. *p.* 110 ; *Pursh, fl.* 2. *p.* 545 ; *Ell. sk.* 2. *p.* 365 ; *Bigel. fl. Bost. p.* 309 ; *Beck, bot. p.* 187. A. rigidus, *Linn. l. c. ; Michx. l. c. ; Pursh, l. c.* A. pulcherrimus, *Lodd. bot. cab.* 1. *t.* 6.

Stems 8 – 18 inches high, growing in clusters, erect or assurgent, reddish, puberulent, the lower part either simple or divided near the root, with very few or numerous corymbose branches at the summit ; the peduncles or flowering branches usually somewhat elongated (often with small bract-like leaves), or frequently short and in a compact cluster. Leaves about an inch long and a line wide, crowded, sometimes reflexed, the margin very rough with minute prickles. Heads large and showy. Scales of the involucre ciliate, finally a little spreading ; the inner ones purplish at the tip. Rays 10 – 12, violet, twice as long as the involucre. Exterior pappus copious. Achenia small.

Dry open woods and on hill-sides ; common. August – October. A humble but ornamental species.

§ 2. TRIPLOPAPPUS, Torr. & Gr. *Bristles of the inner pappus unequal, some of them clavellate or thickened at the summit, the exterior of somewhat scale-like bristles : achenia obovoid, compressed, smooth or slightly pubescent,* 5 – 8*-nerved : involucre shorter than the disk : leaves lanceolate, ovate or oblong : rays white.*

2. DIPLOPAPPUS CORNIFOLIUS, *Darlingt.* *Cornel-leaved Diplopappus.*

Stem slender, roughish-pubescent, rather naked and sparingly corymbose-paniculate at the summit ; leaves elliptical, acuminate at each end, hairy on the veins underneath ; heads few, on divaricate pedicels ; achenia smooth.—*Darlingt. fl. Cest. p.* 474 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 182. Dœllingeria cornifolia, *Nees, Ast. p.* 181. Diplostephium cornifolium, *DC. prodr.*

5. *p.* 274. Aster divaricatus, *Linn. sp.* 2. *p.* 873. A. cornifolius, *Muhl. in Willd. sp.* 3. *p.* 2039; *Bigel. fl. Bost. p.* 313. A. infirmus, *Michx. fl.* 2. *p.* 109. A. humilis, *Pursh, fl.* 2. *p.* 548 (excl. syn. *Willd.*); *Beck, bot. p.* 188.

Stem 1½ – 2 feet high, terete, often flexuous. Leaves 3 – 4 inches long and 1 – 2 wide, ciliolate, the reticulated veins rather prominent underneath; lower ones often spatulate; those on the upper part of the stem distant. Heads middle-sized, usually few (seldom more than 8 or 10); the peduncles rather rigid. Rays broadly lanceolate, white or somewhat ochroleucous. Scales of the involucre oblong-lanceolate, obtuse, ciliate-pubescent on the margin; the inner ones about one-third shorter than the disk, the exterior very short. Appendages of the style linear-subulate, elongated. Achenia large, obovoid, compressed, 6 – 8-nerved. Pappus reddish-brown; most of the longer bristles distinctly clavate, and often a little curved at the tip.

Woods and copses; rather rare. August – September.

3. DIPLOPAPPUS UMBELLATUS, *Torr. & Gr.* *Umbelled Diplopappus.*

Stem striate, fastigiate-corymbose at the summit; leaves elongated, lanceolate, attenuate-acuminate, tapering at the base usually into a short petiole, the margin a little rough; heads numerous, in fastigiate corymbs; scales of the short involucre obtusish, rather closely imbricated; achenia slightly hairy. — *Torr. & Gr. fl. N. Am.* 2. *p.* 183. D. umbellatus *and* amygdalinus, *Hook. fl. Bor.-Am.* 2. *p.* 23. D. amygdalinus, *Darlingt. fl. Cest. p.* 473. Dœllingeria umbellata, *Neest, Ast. p.* 178. Diplostephium umbellatum, *DC. prodr.* 5. *p.* 272. Aster umbellatus, *Ait. Kew.* (ed. 1.) 3. *p.* 199; *Willd. sp.* 3. *p.* 2030; *Bigel. fl. Bost. p.* 310. A. amygdalinus, *Michx. fl.* 2. *p.* 109; *Pursh, fl.* 2. *p.* 549; *Ell. sk.* 2. *p.* 367 (partly); *Torr. compend. p.* 300; *Beck, bot. p.* 188; *Lindl. bot. reg. t.* 1517.

Stem 3 – 5 feet high, often clustered; the corymbose branches rather erect. Leaves 3 – 5 inches long and from half an inch to an inch wide, a little rough above, somewhat pubescent on the veins underneath. Heads above the middle size, numerous, in a somewhat crowded fastigiate corymb. Scales of the involucre a little longer than the ripe achenia. Rays about 12, white or cream-color. Achenia obovoid-oblong, prominently about 5-ribbed. Pappus tawny; the longer series slightly thickened at the tip.

Wet meadows and moist thickets; rather common. August – September.

10. ERIGERON. *Linn.; Torr. & Gr. fl. N. Am. 2. p. 166.* *FLEABANE.*

ERIGERON, STENACTIS and PHALEROCOMA, *DC.*

[From the Greek, *er*, the spring, and *geron*, an old man; because it is hoary early in the season; or, as some say, from the bald heads of the receptacles after the hairy fruit has fallen.]

Heads mostly hemispherical (sometimes cylindrical), many-flowered; the ray-flowers very numerous and usually in more than one series, pistillate; those of the disk tubular, perfect; or some of the exterior filiform-tubular and truncate, pistillate. Scales of the involucre mostly equal, narrow, in a single or somewhat double series. Receptacle flat, naked, punctate or scrobiculate. Appendages of the style very short and obtuse. Achenia compressed, usually pubescent, commonly with two lateral nerves. Pappus a single series of capillary rough bristles, often with minute ones intermixed or forming an indistinct outer series, or sometimes with a distinct short scaly setaceous exterior pappus; the inner pappus rarely wanting in the ray. — Herbs or rarely suffrutescent plants, with entire, lobed, or toothed leaves. Heads solitary, corymbose or paniculate. Rays white, blue or purple.

§ 1. CÆNOTUS, Nutt. *Rays in several series, shorter than the involucre: pappus simple: achenia 2-nerved: corolla of the disk mostly 4-toothed: heads very small, cylindrical.—Annual or biennial herbs.*

1. ERIGERON CANADENSE, *Linn.* *Horse-weed* or *Butter-weed.*

Stem erect, hispid or sometimes smoothish, paniculately very much branched above; leaves lanceolate-linear, the lower ones somewhat serrate, upper ones entire, hispidly ciliate; heads very numerous, corymbosely paniculate and crowded; rays (white) shorter than the pappus; achenia sparsely hispid.—*Linn. sp. 2. p. 863; Fl. Dan. t. 292; Michx. fl. 2. p. 123; Pursh, fl. 2. p. 534; Nutt. gen. 2. p. 148; Ell. sk. 2. p. 397; Torr. compend. p. 291; Hook. fl. Bor.-Am. 2. p. 20; Beck, bot. p. 180; Darlingt. fl. Cest. p. 471; DC. prodr. 5. p. 289; Torr. & Gr. fl. N. Am. 2. p. 167.* E. pusillum, *Nutt. l. c.* Senecio ciliatus, *Walt. fl. Car. p. 208.*

Stem 1 – 6 feet high (in sterile sandy soils often only 4 – 6 inches, in which state it is *E. pusillum*, Nutt.), usually very hairy. Leaves 2 – 4 inches long and 1 – 4 lines wide, tapering at the base; the lower ones sparingly toothed, 3-nerved. Heads scarcely a line and a half long. Scales of the involucre a little hairy. Rays very numerous and narrow. Achenia oblong, whitish.

Fields and waste grounds; very common. July – October. This weed has long been naturalized in Europe. It is sometimes employed as a domestic medicine, being considered tonic, astringent and diuretic (See *Wood & Bache's U. S. Dispens. append. p. 1085*). *E. pusillum* of Nuttall is only a dwarf state of the plant.

§ 2. EUERIGERON, Torr. & Gr. *Rays crowded or in two or more series, longer than the hemispherical involucre: pappus simple, or sometimes with minute bristles intermixed or forming an indistinct external series: achenia 2-nerved.—Mostly perennial herbs.*

2. ERIGERON BELLIDIFOLIUM, *Muhl.* *Poor Robert's Plantain.*

Hairy and canescent with soft spreading hairs; radical leaves obovate or broadly spatulate, somewhat serrate or entire; the cauline ones rather remote, oblong or oblong-lanceolate, a little clasping; heads few, large, corymbose; rays very numerous, more than twice as long as the involucre; achenia smooth. — *Muhl. in Willd. sp.* 3. *p.* 1958; *Bot. mag. t.* 2403; *Pursh, fl.* 2. *p.* 502; *Ell. sk.* 2. *p.* 393; *Bigel. fl. Bost. p.* 302; *Torr. compend. p.* 289; *DC. prodr.* 5. *p.* 285; *Torr. & Gr. fl. N. Am.* 2. *p.* 171. E. pulchellum, *Michx. fl.* 2. *p.* 124; *Darlingt. fl. Cest. p.* 472, not of *DC.*

Stem 12 – 18 inches high, erect, simple, often stoloniferous at the base. Radical leaves usually clustered, 2 – 3 inches long, and nearly an inch wide, narrowed to a short petiole, very hairy, rounded at the extremity, either entire or only serrate towards the summit; the cauline usually few, mostly acute and entire. Heads 2 – 5; the lateral pedicels elongated and rather slender. Scales of the involucre very narrow, hairy and somewhat glandular. Rays about 50, pale bluish-purple, or sometimes nearly white. Corolla of the disk slightly hairy.

Borders of woods, etc.; common. May – June.

3. ERIGERON PHILADELPHICUM, *Linn.* *Philadelphia Fleabane.*

Hairy or pubescent; stem slender, loosely corymbose at the summit; leaves ciliate; the radical and lower cauline ones spatulate-oblong, tapering at the base, obtusely serrate or nearly entire; the upper cauline ones clasping, mostly entire; heads corymbose (rather small); rays very numerous, capillary, more than twice the length of the involucre; achenia minutely hispid. — *Linn. sp.* 2. *p.* 862; *Willd. sp.* 3. *p.* 1957; *Michx. fl.* 2. *p.* 123; *Pursh, fl.* 2. *p.* 533; *Bigel. fl. Bost. p.* 303; *Beck, bot. p.* 179; *Darlingt. fl. Cest. p.* 462; *Torr. & Gr. fl. N. Am.* 2. *p.* 171, not of *Ell.* or *DC.* E. purpureum, *Ait. Kew.* (ed. 1.) 3. *p.* 186; *Pursh, l. c.; Hook. fl. Bor.-Am.* 2. *p.* 19; *DC. prodr.* 5. *p.* 286.

Stem 1 – 2 feet high, hairy or villous towards the base. Leaves thin; the midrib conspicuous; radical ones 2 – 4 inches long and about an inch wide, more or less coarsely serrate or toothed, tapering at the base into a winged petiole; the cauline conspicuously clasping and cordate at the base. Heads usually few. Pedicels elongated. Scales of the involucre lanceolate-linear, a little hairy. Rays innumerable, pale reddish-purple or flesh-color. Pappus simple.

Woods; rather rare. July – August.

§ 3. PHALOCHROLOMA, Cass. *Rays very numerous in a single series, longer than the involucre: pappus manifestly double: the exterior very short, subulate or squamellate, or almost coroniform; the interior of few somewhat deciduous bristles, often caducous or wanting in the ray: achenia 2-nerved.— Annual or biennial plants.*

4. ERIGERON ANNUUM, *Pers.* *Sweet Scabious. Daisy, etc.*

Sparsely hairy; stem corymbosely branched above; leaves coarsely and sharply toothed; radical and lowermost ovate, obtuse, tapering into a margined petiole; upper cauline lanceolate-acute, serrate in the middle; uppermost generally entire; rays very narrow, scarcely twice the length of the sparsely hispid involucre. — *Pers. syn.* 2. *p.* 431; *Hook. fl. Bor.-Am.* 2. *p.* 20; *Torr. & Gr. fl. N. Am.* 2. *p.* 175. E. heterophyllum, *Muhl. in Willd. sp.* 3. *p.* 1956; *Pursh, fl.* 2. *p.* 534; *Nutt. gen.* 2. *p.* 148; *Bost. veg. mat. med. t.* 21; *Beck, bot. p.* 180; *Darlingt. fl. Cest. p.* 472. E. strigosum, *Bigel. fl. Bost. p.* 302. Aster annuus, *Linn. sp.* 2. *p.* 875; *Ait. Kew*, (ed. 2.) 5. *p.* 59. Stenactis annua, *Nees. Ast. p.* 273. S. annua *and* strigosa, *DC. prodr.* 5. *p.* 299.

Root apparently annual. Stem stout, 2 – 4 feet high, striate and angular, more or less hairy. Radical and lower leaves often 1 – 2 or more inches in breadth, tapering at the base, with a rather long winged petiole: stem leaves usually with only 2 – 4 large teeth near the middle. Heads of flowers rather small; the rays white or tinged with purple, with the interior pappus wanting.

Fields and meadows; very common. June – August. This is one of the Shaker medicines, and is reputed to be diuretic and astringent.

5. ERIGERON STRIGOSUM, *Muhl.* *Fleabane. Daisy.*

Stem more or less strigose with a minute appressed pubescence; stem slender, corymbose-paniculate at the summit; leaves either entire or slightly toothed; the radical and lower cauline spatulate-lanceolate, 3-nerved, tapering to a long narrow petiole; upper ones oblanceolate; rays narrowly linear, about twice the length of the minutely hispid involucre. *Muhl. in Willd. sp.* 3. *p.* 1956; *Ell. sk.* 2. *p.* 394; *Torr. compend. p.* 290; *Hook. fl. Bor.-Am.* 2. *p.* 18; *Beck, bot. p.* 180; *Darlingt. fl. Cest. p.* 471; *Torr. & Gr. fl. N. Am.* 2. *p.* 176. E. ambiguum, *Nutt. gen.* 2. *p.* 147. E. nervosum, *Pursh, fl.* 2. *p.* 534, not of *Willd.* E. integrifolium, *Bigel. fl. Bost. p.* 302. E. spathulatum, *H. H. Eaton, in Transyl. jour. med. March*, 1832. E. philadelphicum, *Bart. veg. mat. med. t.* 20. Phalocroloma obtusifolium, *Cass.; DC. prodr.* 5. *p.* 298, excl. syn. Stenactis ambigua, *DC. l. c. p.* 299. S. Beyrichii, *Fisch. & Meyer.*

Root annual. Stem 2 – 4 feet high, somewhat angular and striate, simple, except near the summit. Leaves usually entire, but sometimes sparingly toothed; petioles of the radical ones 1 – 3 inches long; cauline leaves gradually diminishing in size upwards, acute or rather obtuse. Corymbs small, loose, nearly naked. Heads about three-fourths of an inch in diameter.

Rays commonly white, but sometimes pale rose-color. Achenia slightly hairy. Inner pappus of the ray usually wanting; of the disk consisting of few slender deciduous bristles: outer pappus very short, setaceous-squamellate.

Fields and meadows; very common. July – September. Similar in its medicinal properties to the preceding.

Div. 2. CHRYSOCOMEÆ, *DC.* *Heads either heterogamous and radiate, or homogamous and discoid; the rays and disk-flowers yellow and unchanging. Receptacle never chaffy.*

11. SOLIDAGO. *Linn.*; *DC. prodr.* 5. *p.* 330. GOLDEN-ROD.

[From the Latin, *solido*, to unite or make firm; in allusion to its supposed vulnerary qualities.]

Heads usually small, few- or many-flowered; the ray-flowers few, or sometimes wanting; those of the disk tubular, perfect. Involucre oblong; the scales imbricated, appressed, destitute (except in § 1.) of foliaceous or herbaceous tips. Receptacle narrow, mostly alveolate. Appendages of the styles lanceolate. Achenia many-ribbed, somewhat terete. Pappus simple, of numerous rough capillary bristles. — Perennial herbs, with sessile alternate cauline leaves; the radical ones never cordate. Heads in terminal or axillary racemes or clusters, sometimes corymbose; the pedicels often unilateral. Flowers yellow (except in *S. bicolor*).

§ 1. CHRYSASTRUM, Torr & Gr. *Rays* 12 – 16, *or entirely wanting: scales of the involucre with squarrose herbaceous tips: pappus unequal; some or all of the inner bristles thickened at the apex: leaves large.*

1. SOLIDAGO SQUARROSA, *Muhl.* *Squarrose Golden-rod.*

Stem smooth below, very pubescent above; leaves smoothish, spatulate-oblong, acute, serrate; upper ones sessile, lower narrowed at the base into a margined petiole; heads (large) in dense axillary glomerate racemes or spikes; scales of the involucre minutely pubescent, with conspicuous recurved-spreading tips; rays 12 – 16; achenia smooth. — *Muhl. cat. p.* 79; *Nutt. gen.* 2. *p.* 161; *Torr. compend. p.* 305; *Beck, bot. p.* 193; *Darlingt. fl. Cest. p.* 459; *DC. prodr.* 3. *p.* 337; *Torr. & Gr. fl. N. Am.* 2. *p.* 196. S. confertiflora, *Nutt. in jour. acad. Phil.* 7. *p.* 102; *Hook. fl. Bor.-Am.* 2. *p.* 4, not of *DC.*

Stem 2 – 4 feet high, stout, simple. Lower leaves 4 – 6 inches long and 2 inches or more in breadth, veiny, acute, rather thick, the veins and margin pubescent; petiole of the radical ones 2 – 3 inches long. Heads of flowers much larger than in most of the following species, in rigid axillary clusters, forming a large leafy compound spike. Scales of the involucre puberulent, ciliate on the margin. Rays bright yellow, rather elongated.

Rocky hill-sides, from the highlands of the Hudson north and west; rare. August – September. A well-marked species.

§ 2. VIRGAUREA, Tourn. *Rays mostly fewer than the disk flowers, rarely wanting: scales destitute of foliaceous or herbaceous tips: pappus equal.*

* *Heads in axillary clusters or short racemes, and often racemose at the extremity of the stem or branches: leaves feather-veined.*

2. SOLIDAGO BICOLOR, *Linn.* *White Golden-rod.*

Hairy and more or less cinereous; stem mostly simple; leaves oblong or elliptical-lanceolate, acute at each end, remotely serrate; the radical and lower cauline ones broader, tapering into a petiole; heads glomerate, or in short racemes from the axils of the upper leaves, and forming an interrupted spike; scales of the involucre smoothish, oblong-obtuse; rays 7 – 9, whitish or cream-colored; disk-flowers pale yellow. — *Linn. mant. p.* 114; *Ait. Kew.* (ed. 1.) 3. *p.* 216; *Michx. fl.* 2. *p.* 116; *Pursh, fl.* 2. *p.* 537; *Ell. sk.* 2. *p.* 382; *Bigel. fl. Bost. p.* 306; *Hook. fl. Bor.-Am.* 2. *p.* 3; *Beck, bot. p.* 191; *Darlingt. fl. Cest. p.* 458; *DC. prodr.* 5. *p.* 335; *Torr. & Gr. fl. N. Am.* 2. *p.* 197. Aster bicolor, *Nees, synops.*; *Spreng. syst.* 3. *p.* 536.

Stem 2 – 3 feet high, often purplish, clothed with villous hairs, sometimes a little branching at the summit. Leaves pale green, more or less hairy on both sides; radical ones 3 – 5 inches long and 1 – 2 inches wide, the petiole long and narrow; upper cauline sometimes entire, sessile, but acute at the base. Heads of flowers rather large, the glomerules forming an elongated compound spike or terminal leafy raceme. Involucre oblong, the scales oblong-lanceolate, with greenish midrib and tips, the margin scarious and minutely ciliate. Rays rather short. Disk-flowers 9 – 14. Achenia smooth, narrowly sulcate.

Woods, copses, etc.; frequent. *Fl.* August – September.

3. SOLIDAGO LATIFOLIA, *Linn.* *Broad-leaved Golden-rod.*

Stem angled and usually flexuous, smooth; leaves broadly ovate or oval, coarsely and acutely serrate-toothed, conspicuously acuminate at both ends, or abruptly attenuate into a short petiole, mostly hairy on the veins underneath; heads in (usually short) axillary racemes or clusters, and racemose or paniculate at the summit of the stem; scales of the involucre nearly smooth, obtuse; achenia silky-pubescent. — *Linn. sp.* 2. *p.* 789; *Torr. compend. p.* 304; *Torr. & Gr. fl. N. Am.* 2. *p.* 198. S. flexicaulis, *Ait. Kew.* (ed. 1.) 3. *p.* 217; *Michx. fl.* 2. *p.* 118 (var. *α.*); *Ell. sk.* 2, *p.* 386; *Beck, bot. p.* 192; *DC. prodr.* 5. *p.* 335. S. flexicaulis, *β.* latifolia, *Willd. sp.* 3. *p.* 2064; *Pursh, fl.* 2. *p.* 5. 42; *Hook. fl. Bor.-Am.* 2. *p.* 5; *Darlingt. fl. Cest. p.* 460. S. macrophylla, *Bigel. fl. Bost. p.* 305; *Beck, l. c.*

Stem 1½ – 3 feet high, usually simple. Leaves 3 – 5 inches long, and 1½ – 2½ inches wide, thin, with very sharp closely approximated lanceolate and spreading teeth, mostly smooth above, and nearly so underneath. Heads middle-sized; the clusters or racemes usually shorter, but sometimes longer than the leaves. Peduncles pubescent. Exterior scales of the involucre very short. Ray-flowers 3– 4; disk -flowers 6 – 7.

Woods, and banks of streams; frequent. September – October.

4. SOLIDAGO CÆSIA, *Linn.* *Blue-stemmed Golden-rod.*

Stem terete, smooth, glaucous, simple or branching; leaves lanceolate, acuminate, acutely serrate, smooth; heads in short axillary clusters, and sometimes racemose at the summit; scales of the involucre smoothish, obtuse; achenia pubescent. — *Linn. sp.* 2. *p.* 789; *Ait. Kew.* (ed. 1.) 3. *p.* 217; *Pursh, fl.* 2. *p.* 540; *Ell. sk.* 2. *p.* 385; *Bigel. fl. Bost. p.* 306; *Beck, bot. p.* 191; *Darlingt. fl. Cest. p.* 460; *DC. prodr.* 5. *p.* 336; *Torr. & Gr. fl. N. Am.* 2. *p.* 199. S. flexicaulis, *Linn. herb.* S. flexicaulis, var. 3. *Michx. fl.* 2. *p.* 118. S. axillaris, *Pursh, fl.* 2. *p.* 542; *Beck, l. c.*; *DC. prodr.* 5. *p.* 335. S. livida, *Willd. enum. p.* 891; *Pursh, l. c.*

Stem 1½ – 3 feet high, slender, usually of a purplish color, and more or less glaucous, nearly straight, often paniculately branched above. Leaves 3 – 5 inches long, and commonly 5 – 8 lines wide, but sometimes considerably broader, particularly the lowest and radical ones, narrowed at the base, but sessile, sharply and often rather coarsely serrate; the teeth either appressed or somewhat spreading. Heads rather smaller than in the preceding species, and the clusters generally much shorter. Rays 3 – 4: disk-flowers 5 – 7. Achenia pubescent, but not silky.

Woods and thickets; common. September – October. This plant sometimes approaches *S. latifolia*, but is probably a distinct species, being distinguished by its round and terete stem, much narrower leaves, etc.

** *Racemes terminal, erect, not secund, either simple and virgate, or compound and paniculate: leaves feather-veined.*

5. SOLIDAGO STRICTA, *Ait.* (Plate LIII.) *Willow-leaved Golden-rod.*

Plant smooth; stem strict, simple; leaves lanceolate, acute; the radical and lower cauline ones sparingly and minutely appressed-serrate, tapering into winged somewhat sheathing petioles; the upper sessile, entire; racemes (simple or compound) appressed, numerous, forming a crowded and very strict panicle which is usually leafy towards the base; heads 8 – 12-flowered; scales of the involucre linear-oblong, obtuse; rays 5 – 6, small; achenia smooth.—*Ait. Kew.* (ed. 1.) 3. *p.* 216; *Willd. sp.* 3. *p.* 2062; *Pursh, fl.* 2. *p.* 540?; *Hook. fl. Bor.-Am.* 2. *p.* 4; *DC. prodr.* 5. *p.* 340?; *Torr. & Gr. fl. N. Am.* 2. *p.* 204.

Stem 2 – 4 feet high, virgate, purplish. Leaves thickish; the radical ones (including the long winged petiole) 6 – 10 inches long and 1 – 1½ inch wide; the serratures very small and glandular; upper ones nearly entire. Racemes forming a dense upright panicle. Pedicels smooth, or nearly so. Heads rather small.

Sphagnous swamps; sometimes on mountains. Catskill mountains (*Mr. R. Benner*). Near Troy (*Dr. Wright*). Oneida county (*Dr. Gray*). Near Lewiston, &c. (*Dr. Knieskern*). Latter part of July – September.

6. SOLIDAGO VIRGA-AUREA, *Linn.* *Common European Golden-rod.*

Stem terete or slightly angular; cauline leaves lanceolate, tapering at each end, serrate, the lower ones elliptical, petioled; raceme erect, simple or compound; scales of the involucre lanceolate, acute; rays about 8; achenia minutely pubescent. — *Linn. sp.* 2. *p.* 880; *Engl. bot. t.* 301; *Bigel. fl. Bost. p.* 306; *Hook. fl. Bor.-Am.* 2. *p.* 5; *DC. prodr.* 5. *p.* 338; *Torr. & Gr. fl. N. Am.* 2. *p.* 206.

var. *alpina:* stem 3 – 8 inches high, smooth or a little pubescent; leaves oblong-obovate or spatulate, acute or obtuse; heads (large) in a dense thyrsoid or corymbose raceme; involucre smoothish; rays 8 – 12.— *Bigel. l. c.; Torr. & Gr. l. c.* S. Virga-Aurea, β. *Hook. Brit. fl.* (*ed.* 4.) *p.* 306.

Root thick and creeping, ligneous. Stem erect, simple, often flowering when only about 2 inches high. Leaves 1 – 2½ inches long and 4 – 8 lines wide, crenately serrate; the upper ones nearly entire; lower and radical attenuate into a winged petiole. Heads few, and large for the size of the plant. Rays elongated.

Summit of Mount Marcy, Essex county. August. This is the only species of *Solidago* common to Europe and America.

**** Heads large, in a compound corymb; leaves feather-veined or 3-nerved.*

7. SOLIDAGO RIGIDA, *Linn.* *Rigid-leaved Golden-rod.*

Roughly pubescent and somewhat hoary; stem stout, corymbosely branched at the summit; leaves ovate or oval, rigid, slightly clasping, the lower ones serrate and petioled, the uppermost entire; heads very large, 25 – 30-flowered, crowded; pedicels short; scales of the involucre oblong, very obtuse.—*Linn. sp.* 2. *p.* 880; *Ait. Kew.* (ed. 1.) 3. *p.* 216; *Michx. fl.* 2. *p.* 118; *Pursh, fl.* 2. *p.* 543; *Ell. sk.* 2. *p.* 390; *Hook. fl. Bor.-Am.* 2. *p.* 5; *DC. prodr.* 5. *p.* 337; *Beck, bot. p.* 193; *Torr. & Gr. fl. N. Am.* 2. *p.* 209. S. grandiflora, *Raf. in med. rep.* (hex. 2.) 5. *p.* 359.

Stem 3 – 4 feet high, rigid, terete, minutely and densely pubescent. Leaves clothed with a minute but usually rough pubescence, sometimes rather soft underneath; lower ones remotely serrate with appressed teeth; radical ones 4 – 8 inches long, tapering to narrow petioles, 1 – 2½ inches wide; upper ones gradually smaller, and more or less clasping. Heads large and showy. Scales of the involucre usually pubescent. Rays 7 – 10. Achenia very smooth.

Dry hill-sides, usually in rocky places. Highlands of New-York (*Dr. Barratt*), and in the western part of the State. August – October.

8. SOLIDAGO OHIOENSIS, *Riddell.* (Plate LIV.) *Ohio Golden-rod.*

Very smooth; stem strict, fastigiate-corymbose at the summit; radical and lowest cauline leaves lanceolate-oblong, rather obtuse, ciliolate-scabrous on the margin, remotely serrate towards the apex, tapering into slender petioles; upper ones lanceolate, closely sessile, entire or nearly so; heads (rather small) numerous, in a compound raceme, on slender smooth pedicels, 16 – 20-flowered; pappus shorter than the corolla of the disk. — *Riddell, syn. fl. Western States, p.* 57; *Torr. & Gr. fl. N. Am.* 2. *p.* 209.

Stem 2 – 3 feet high, simple and virgate, terete, divided at the summit into a rather dense compound fastigiate corymb. Leaves rather thick; radical ones (including the petiole) 10 – 12 inches or more in length, tapering into a very long slender petiole 1 – 2 inches wide, the margin very rough, the serratures glandular at the tip; cauline leaves acute. Heads oblong, erect. Scales of the involucre 8 – 10, oblong, obtuse. Rays 6 – 7, small. Achenia perfectly smooth.

Moist meadows; rare. Western part of the State (*Dr. Sartwell, Dr. Knieskern, Mr. G. W. Clinton*). Niagara Falls (*Mr. Macrae*). September – October.

**** *Racemes erect or spreading, paniculate: leaves thickish or fleshy, very smooth and entire, obscurely veiny, often somewhat triply veined.—Natives of salt or brackish marshes.*

9. SOLIDAGO SEMPERVIRENS, *Linn.* *Common Salt-marsh Golden-rod.*

Stem erect, smooth; leaves fleshy, lanceolate, acute, sessile, acute at each end, obscurely triplinerved; radical ones lanceolate-oblong, tapering into long petioles; racemes paniculate, more or less secund; peduncles pubescent, or nearly smooth; scales of the involucre acute. — *Linn. sp.* 2. *p.* 898; *Pursh, fl.* 2. *p.* 538; *Ell. sk.* 2. *p.* 379; *DC. prodr.* 5. *p.* 335; *Torr. & Gr. fl. N. Am.* 2. *p.* 211. S. lævigata, *Ait. Kew.* (ed. 1.) 3. *p.* 215; *Pursh, l. c. p.* 541; *Bigel. fl. Bost. p.* 306; *Torr. compend. p.* 304; *Beck, bot. p.* 192. S. limonifolia, *Pers.?; Torr. compend. l. c.; Beck, l. c.*

Stem 3 – 6 feet high, smooth and striate. Leaves slightly scabrous on the margin; radical one 1 – 2 inches wide; the petioles 6 – 12 inches long. Panicle usually rather compact, and conspicuously secund. Heads rather large. Involucre oblong: scales numerous; outer ones short. Rays 8 – 10. Achenia slightly pubescent.

Salt marshes, and near brackish waters; common along the shores of Long Island, and on the Hudson as far as the salt water extends. September.

***** *Racemes spreading or recurved, secund: leaves veiny, sometimes indistinctly triplinerved, usually serrate.*

10. SOLIDAGO NEGLECTA, *Torr. & Gr.* (Plate LV.) *Neglected Golden-rod.*

Stem smooth, striate; leaves mostly thickish, smooth; the radical and lowest cauline oblong or ovate-lanceolate, mostly acute at each end, sessile (often obscurely triplinerved), finely appressed-serrate, the upper ones entire; racemes short, dense, secund, somewhat spreading, disposed in an elongated or pyramidal somewhat leafy panicle; peduncles and pedicels smoothish; heads 8 – 12-flowered; scales of the involucre oblong, obtuse, pubescent on the margin; achenia smoothish. — *Torr. & Gr. fl. N. Am.* 2. *p.* 213.

Stem 3 – 6 feet high, rather stout. Primordial leaves rather obtuse; the others very acute. Racemes at first rather erect, at length more or less spreading. Heads middle sized; the pedicels short, but slender. Rays 4 – 5, rather large.

Swamps; rather common in various parts of the State. August – September. This species is probably often confounded with *S. Muhlenbergii* and *S. arguta*. From the former it differs in its more entire leaves, strict and terete stem and fewer-flowered heads, etc.; from the latter by its elongated panicle, with short racemes, and also by its larger heads and much fewer flowers, etc.

11. SOLIDAGO PATULA, *Muhl.* *Spreading Golden-rod.*

Stem angled and striate, smooth, usually branched above; leaves (large) elliptical, serrate, very smooth underneath, rough above; racemes mostly short and crowded on the elongated and somewhat leafy branches, at length spreading or recurved; peduncles scabrous-pubescent; scales of the involucre oblong, rather obtuse; rays 6 – 7; disk-flowers 8 – 10; achenia sparsely and minutely pubescent. — *Muhl. in Willd. sp.* 3. *p.* 2059; *Pursh, fl.* 2. *p.* 537; *Torr. compend. p.* 302; *Beck, bot. p.* 190; *Darlingt. fl. Cest. p.* 457; *DC. prodr.* 5. *p.* 333; *Torr. & Gr. fl. N. Am.* 2. *p.* 213. S. asperata, *Banks, mss.; Pursh, l. c.; Hook. fl. Bor.-Am.* 2. *p.* 3.

Stem 3 – 4 feet high, often purple. Leaves somewhat coriaceous, very rough above, often of a dull purplish or leaden hue; radical ones 4 – 8 inches long and 2 – 3 inches in breadth, narrowed into a winged petiole; cauline acute at each end, the serratures acute and rather appressed. Racemes paniculate, secund. Heads rather large. Scales of the involucre green, minutely pubescent. Rays oblong, middle-sized.

Borders of swamps, and in wet meadows; common. August – September. Sometimes the panicle is contracted, and the racemes only slightly secund.

12. SOLIDAGO ARGUTA, *Ait.* *Sharp-toothed Golden-rod.*

Whole plant smooth, except the minutely ciliate margins of the leaves; stem strict; radical and lower cauline leaves large, elliptical or lanceolate-oval, veiny, sharply serrate, acuminate, tapering into winged and more or less ciliate petioles; the others lanceolate, tapering at each end, sessile, entire or sparingly serrate; racemes dense, at length elongated and recurved, forming a corymbose panicle; scales of the involucre somewhat carinate, smooth, much appressed, oblong, rather obtuse; rays 8 – 12, small; disk-flowers about 10; achenia smoothish. — *Ait. Kew.* (ed. 1.) 3. *p.* 313; *Pursh, fl.* 2. *p.* 538; *DC. prodr.* 5. *p.* 333; *Torr. & Gr. fl. N. Am.* 2. *p.* 214, not of *Muhl. &c.* S. ciliaris, *Muhl. in Willd. sp.* 3. *p.* 2056; *Beck, bot. p.* 189; *Darlingt. fl. Cest. p.* 455; *DC. prodr. l. c. p.* 331.

Stem 3 – 4 feet high, terete, somewhat striate, often purple. Radical leaves (including the petioles) often nearly a foot long and 2 – 3 inches wide, rather coriaceous; upper cauline leaves 2 – 4 inches long and 5 – 8 lines wide, mostly entire, obscurely triplinerved. Heads small, very numerous, disposed in a long racemose corymbose panicle, which is at first contracted, but at length somewhat spreading. Pedicels and branches smooth. Scales of the involucre greenish yellow, the outer ones ovate-oblong.

Meadows and fields; rather common. August – September. It varies with narrow leaves, when it is the *S. juncea* of Aiton.

13. SOLIDAGO MUHLENBERGII, *Torr. & Gr.* *Muhlenberg's Golden-rod.*

Stem angled, smooth, leaves large and thin, very smooth on both sides, sharply and strongly serrate; the radical ones ovate, on winged petioles; the cauline elliptical-lanceolate, strongly acuminate, tapering at the base, the uppermost somewhat entire; racemes pubescent, short, spreading, disposed in an elongated open and rather slender panicle; scales of the involucre oblong-linear, smoothish; rays 5 – 7, rather large; disk-flowers 12 – 14; achenia smooth. — *Torr. & Gr. fl. N. Am.* 2. *p.* 214. S. arguta, *Muhl. cat. p.* 79; *Darlingt. fl. Cest. p.* 458, not of *Ait.*

Stem 2 – 3 feet high, simple, or branched at the summit. Leaves with very acute and salient teeth, nearly entire towards the base and apex. Panicle open, but the racemes rather short and seldom recurved. Heads crowded, larger than in the preceding species.

Low grounds, and shady moist places; rather rare. August – September. Differs from the preceding in its more slender habits, thinner leaves, narrower and more membranaceous involucral scales, less numerous rays, etc.

14. SOLIDAGO ALTISSIMA, *Linn.* *Tall Hairy Golden-rod.*

Stem clothed with rough hair; leaves ovate-lanceolate or oblong-lanceolate, acute at each end or acuminate, sessile, coarsely serrate with mucronate spreading teeth, reticulated and more or less rugose, rough above, hairy on the veins underneath; racemes paniculate, spreading or recurved; scales of the involucre smoothish, linear-lanceolate, rather obtuse; rays 6 – 9, small; disk-flowers 4 – 7; achenia pubescent. — *Linn. sp.* 2. *p.* 878; *Ait. Kew.* (ed. 1.) 3. *p.* 212; *Willd. sp.* 3. *p.* 2058; *Bigel. fl. Bost. p.* 305; *Beck, bot. p.* 189; *Hook. fl. Bor.-Am.* 2. *p.* 2; *Darlingt. fl. Cest. p.* 456; *Torr. & Gr. fl. N. Am.* 2. *p.* 216. S. altissima, aspera, rugosa *and* villosa, *Pursh, fl.* 2. *p.* 536. S. altissima, aspera, rugosa *and* humilis, *DC. prodr.* 5. *p.* 333, &c.

var. *villosa:* leaves thin, often nearly smooth above and rather softly hairy on the veins underneath. — *Torr. & Gr. l. c.* S. altissima, β. *Ait. l. c.* S. villosa, *Pursh, l. c.; Hook, l. c.*

var. *rugosa:* stem roughly pubescent, hairy; leaves serrate with appressed teeth, reticulated and mostly rugose. — *Torr. & Gr. l. c.* S. rugosa, *Mill.; Willd. l. c.; Pursh, l. c.; Ell. sk.* 2. *p.* 574; *Hook. l. c.*

Stem 3 – 7 feet high, often purplish; the pubescence harsh and of a grayish color. Leaves variable in outline and in size, usually rough and more or less rugose, irregularly serrate. Panicle pyramidal; the racemes secund; the branches and pedicels pubescent. Heads rather small. Rays short.

Low grounds, borders of fields, etc.; common. August – October.

15. SOLIDAGO ULMIFOLIA, *Muhl.* *Elm-leaved Golden-rod.*

Stem smoothish, with hairy branches; leaves elliptical-ovate or oblong-lanceolate, acuminate, tapering at the base, but sessile, coarsely and unequally toothed, smooth above, softly pubescent underneath; racemes paniculate, recurved spreading; scales of the involucre lanceolate-oblong; rays about 4, short; achenia minutely pubescent. — *Muhl. in Willd. sp.* 3. *p.* 2060; *Pursh, fl.* 2. *p.* 538; *Beck, bot. p.* 190; *Darlingt. fl. Cest. p.* 457; *DC. prodr.* 5. *p.* 333; *Torr. & Gr. fl. N. Am.* 2. *p.* 217.

Stem 3 – 4 feet high, striate, sometimes slightly hirsute with scattered hairs. Leaves sometimes a little pubescent above, roughly ciliolate, pubescent underneath, especially on the veins and midrib, nearly or quite smooth above. Racemes often elongated and slender, spreading, and usually recurved. Scales of the involucre somewhat ciliate. Rays small.

Borders of woods and in low grounds; not common. August – September.

16. SOLIDAGO ODORA, *Ait.* *Sweet-scented Golden-rod.*

Stem slender, simple, pubescent in lines; leaves linear-lanceolate, entire, smooth, rough on the margin, marked with pellucid dots; racemes paniculate; involucre smooth; rays 3 – 4, large; disk-flowers 3 – 4; achenia minutely hairy. — *Ait. Kew.* (ed. 1.) 3. *p.* 214; *Pursh, fl.* 2. *p.* 539; *Ell. sk.* 2. *p.* 376; *Bigel. med. bot. t. p.* 188. *t.* 20, *and fl. Bost. p.* 304; *Beck, bot. p.* 191; *Hook. fl. Bor.-Am.* 2. *p.* 3; *Darlingt. fl. Cest. p.* 457; *DC. prodr.* 5. *p.* 334; *Torr. & Gr. fl. N. Am.* 2. *p.* 219. S. retrorsa, *Michx. fl.* 2. *p.* 117; *Ell. sk.* 2. *p.* 377.

Stem 3 – 4 feet high, often reclined; the lines of pubescence descending from the base of the leaves. Leaves closely sessile, spreading or reflexed, 5 – 8 lines wide, tapering to a point; the midrib light-colored and prominent; the veins indistinct. Panicle pyramidal, mostly secund. Heads of flowers middle sized; the pedicels hairy. Scales of the involucre rather acute, oblong-lanceolate, slightly carinate.

Borders of woods, and in bushy places, in dry soil; common. August – September. The leaves of this plant exhale a pleasant odor of aniseed when bruised, and yield by distillation a fragrant volatile oil, which is used as a remedy for flatulence and to allay nausea.

17. SOLIDAGO NEMORALIS, *Ait.* *Gray Golden-rod.*

Whole plant clothed with a short dense grayish pubescence; stem simple or branched above; radical leaves spatulate or obovate-cuneiform, narrowed at the base into a petiole, crenately serrate; cauline ones oblanceolate, nearly entire, rather rough; racemes paniculate, dense, at length recurved-spreading; scales of the involucre linear-oblong, rather obtuse, appressed; rays 6 – 9; disk-flowers 3 – 6; achenia pubescent with appressed hairs. — *Ait. Kew.* (ed. 1.) 3. *p.* 213; *Pursh, fl.* 2. *p.* 537; *Ell. sk.* 2. *p.* 373; *Bigel. fl. Bost. p.* 305; *Beck, bot. p.* 190; *Hook. fl. Bor.-Am.* 2. *p.* 3; *Darlingt. fl. Cest. p.* 456; *DC. prodr.* 5. *p.* 333; *Torr. & Gr. fl. N. Am.* 2. *p.* 220. S. hispida, *Muhl. in Willd. sp.* 3. *p.* 2063. S. cinerescens, *Schwein. in Ell. sk. l. c.*

Stem 1 – 2½ feet high, terete, often considerably branched at the summit. Radical leaves 2 – 4 inches long and 6 – 10 lines wide, usually somewhat toothed, but often nearly or quite entire, especially in the dwarf state of the plant; cauline leaves tapering to a narrow base. Heads of flowers middle-sized, very numerous and much crowded, collected into a more or less elongated panicle composed usually of short (but sometimes rather elongated) racemes. Scales of the involucre slightly ciliate on the margin. Rays rather short.

In dry and sterile fields; often scarcely a foot high. September – October. This very common species is easily recognized by its grayish downy appearance and spatulate lower leaves.

***** *Racemes spreading or recurved, secund; leaves manifestly triplinerved, or 3-ribbed.*

18. SOLIDAGO CANADENSIS, *Linn.* *Canadian Golden-rod.*

Stem roughly hairy or villous; leaves lanceolate, acuminate, sharply serrate, or sometimes nearly entire, rough above, pubescent underneath; panicle pyramidal or fastigiate, the racemes very numerous and recurved; heads small; scales of the involucre linear-lanceolate; rays very short, rather acute; achenia pubescent. — *Linn. sp.* 2. *p.* 878; *Ait. Kew.* (ed. 1.) 3. *p.* 210; *Willd. sp.* 3. *p.* 2055; *Pursh, fl.* 2. *p.* 535; *Ell. sk.* 2. *p.* 369; *Beck, bot. p.* 188; *Darlingt. fl. Cest. p.* 455; *Hook. fl. Bor.-Am.* 2. *p.* 1 (excl. β.); *DC. prodr.* 5. *p.* 330; *Torr. & Gr. fl. N. Am.* 2. *p.* 223. S. nutans, *Desf.; DC. l. c.*

var. *intermedia:* stem villous or densely grayish-pubescent; leaves softly pubescent or tomentose underneath, rough above. *Torr. & Gr. l. c.* S. canadensis, β. *Ait. l. c.; Hook. l. c.* S. procera, *Desf.; DC. l. c.*

var. *procera:* stem villous or roughish-hirsute; leaves tomentose underneath, rough above, elongated-lanceolate, sparingly serrate or the upper ones entire; heads larger, with the rays rather longer. *Torr. & Gr. l. c.* S. procera, *Ait. l. c.; Ell. sk.* 2. *p.* 369.

Stem 3 – 5 feet high, terete, very finely striate. Leaves pale green, acute at the base, the midrib and two lateral longitudinal nerves whitish and strongly marked, variable as to the degree of roughness and pubescence. Panicle rather large and pyramidal, consisting of numerous secund racemes of very small heads. Pedicels rather short, but slender. Rays 7 – 8. Disk-flowers 3 – 5.

Borders of woods, and fields; common. August – September.

19. SOLIDAGO SEROTINA, *Ait.* *Late-flowering Golden-rod.*

Stem very smooth and often glaucous; leaves lanceolate, acuminate, acutely serrate, very smooth except the veins underneath, the margin and usually the upper surface rough; peduncles slender and rather long, roughish-pubescent; rays numerous, short; achenia nearly smooth when mature. — *Ait. Kew.* (ed. 1.) 3. *p.* 211; *Hook. fl. Bor.-Am.* 2. *p.* 1; *Torr. & Gr. fl. N. Am.* 2. *p.* 224. S. gigantea, *Darlingt. fl. Cest. p.* 455.

Stem 4 – 7 feet high, terete, finely striate, sometimes purplish. Leaves 3 – 4 inches long and 5 – 8 lines wide, rather remotely serrate with somewhat spreading teeth, acute but not attenuate at the base, strongly 3-ribbed, ciliolate-scabrous on the margin, and more or less rough on the upper surface. Panicle large. Heads middle-sized. Scales of the involucre smoothish, lanceolate, rather acute. Rays 9 – 12. Disk-flowers 5 – 9. Achenia pubescent when young, at length nearly smooth.

Low grounds; common. August – October. Distinguished on the one side from *S. Canadensis* by its smooth stem, and on the other from *S. gigantea* by the rough upper surface of the leaves and the pubescence of the veins underneath.

20. SOLIDAGO GIGANTEA, *Ait.* *Tall Smooth Golden-rod.*

Stem smooth and often glaucous; leaves quite smooth on both sides, lanceolate, attenuate-acuminate, scabrous-ciliolate, sharply serrate except the narrowed base; panicle large, pyramidal, the racemes numerous and recurved; peduncles pubescent; heads rather large; rays exserted; achenia pubescent. — *Ait. Kew.* (ed. 1.) 3. *p.* 211; *Willd. sp.* 3. *p.* 2056; *Hook. fl. Bor.-Am.* 2. *p.* 2; *DC. prodr.* 5. *p.* 331; *Torr. & Gr. fl. N. Am.* 2. *p.* 224. S. serotina, *Willd. l. c.*

Stem 3 – 7 feet high, and, as well as the leaves, perfectly smooth. Leaves varying from broadly to narrowly lanceolate. Panicle usually large. Heads larger than in the two preceding species.

Fields and thickets; common. August – September.

§ 3. EUTHAMIA, Nutt. *Scales of the involucre much appressed, somewhat glutinous: receptacle fimbrillate: rays* (6 – 20) *more numerous than the disk-flowers, very small. Stem much branched, fastigiate-corymbose: heads in corymbose clusters, mostly fascicled: leaves linear, entire, sessile.*

21. SOLIDAGO LANCEOLATA, *Linn.* *Bushy Golden-rod.*

Stem much branched, fastigiate; leaves lanceolate-linear, 3 – 5-nerved, minutely scabrous-pubescent; heads ovoid-cylindrical, in dense corymbose clusters, sessile; rays 15 – 20, minute; disk-flowers 8 – 12. — *Linn. mant. p.* 114; *Ait. Kew.* (ed. 1.) 3. *p.* 214; *Michx. fl.* 2. *p.* 116 (*var.* major); *Pursh, fl.* 2. *p.* 405; *Bigel. fl. Bost. p.* 301; *Beck, bot. p.* 194; *Hook. fl. Bor.-Am.* 2. *p.* 6 (partly); *Darlingt. fl. Cest. p.* 461; *Torr. & Gr. fl. N. Am.* 2. *p.* 226. S. graminifolia, *Ell. sk.* 2. *p.* 391; *DC. prodr.* 5. *p.* 341. Euthamia graminifolia, *Nutt. gen.* 2. *p.* 162, *and in trans. Amer. phil. soc.* (n. ser.) 7. *p.* 326.

Stem 2 – 4 feet high, slightly pubescent and somewhat rough (particularly above), angularly striate. Leaves 3 – 6 inches long and 3 – 5 lines wide, slightly pubescent, 3- (the broader ones 5-) nerved, very slightly marked with resinous dots. Heads about 3 lines long. Scales of the involucre oblong or lanceolate, obtuse, shining and slightly viscid. Achenia villous-pubescent.

Low grounds, thickets, etc.; sometimes in rather dry situations; very common. August – September. Easily distinguished by its much-branched, flat-topped stem, and long, broadly linear leaves.

22. SOLIDAGO TENUIFOLIA, *Pursh.* *Slender-leaved Golden-rod.*

Stem much branched, fastigiate; leaves very narrowly linear, spreading, 1- (or rarely 3-) nerved, punctate with resinous dots; heads obovoid or turbinate, in loose corymbose clusters, sometimes pedicellate; rays 6 – 12, slightly exserted; disk-flowers 5 – 6. — *Pursh, fl.* 2.

p. 540 ; *Ell. sk.* 2. *p.* 392 ; *Torr. compend. p.* 303 ; *Beck, bot. p.* 194 ; *DC. prodr.* 5. *p.* 341 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 226. S. lanceolata, *β.* minor, *Michx. fl.* 2. *p.* 116. Euthamia graminifolia, *Nutt. gen.* 2. *p.* 162, *and trans. Amer. phil. soc. l. c.*

Stem slender, 15 inches – 2 feet high, the lower part often naked. Leaves 2 – 3 inches long and about a line in breadth, often with smaller leaves fascicled in the axils, marked with minute resinous dots. Heads smaller and less crowded than in the preceding species.

Sandy fields ; abundant in Suffolk county, Long Island. August – October. This species is in general easily distinguished from the preceding by its narrow leaves and more slender habit, but sometimes forms occur which seem almost to connect them.

11. CHRYSOPSIS. *Nutt. gen.* 2. *p.* 150 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 352.

CHRYSOPSIS.

[From the Greek, *chrysos*, gold, and *opsis*, resemblance ; the prevailing color of the flowers being yellow.]

Heads many-flowered : ray-flowers ligulate, pistillate, in a single series ; those of the disk tubular, perfect, 5-toothed. Scales of the involucre linear, imbricate. Receptacle somewhat alveolate, flat. Branches of the style mostly terminated by linear hispid appendages, often longer than the flat stigmatic portion. Achenia obovate or oblong-linear, compressed, hairy. Pappus of the disk and ray similar, double ; the exterior short, somewhat chaffy or setiform ; the interior of numerous rough capillary bristles. — Perennial plants, mostly villous or silky, with oblong or linear usually entire leaves. Heads mostly corymbose, showy. Flowers yellow.

1. CHRYSOPSIS FALCATA, *Ell.* (Plate LVI.) *Sickle-leaved Chrysopsis.*

Stems assurgent, woolly ; leaves crowded, linear, mucronate, rigid, spreading or falcate, about 3-nerved, hairy underneath, at length nearly smooth above ; heads (small) paniculate-corymbed, the pedicels slender ; scales of the involucre villous ; achenia oblong-linear ; exterior pappus setiform. — *Ell. sk.* 2. *p.* 336 (note) ; *Beck, bot. p.* 177 ; *DC. prodr.* 5. *p.* 326 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 253. Inula falcata, *Pursh, fl.* 2. *p.* 532 ; *Torr. compend. p.* 291. I. (Chrysopsis) Mariana, *β.*, *Nutt. gen.* 2. *p.* 151. Pityopsis falcata, *Nutt. in trans. Amer. phil. soc.* (n. ser.) 7. *p.* 318.

Stems often several from one root, curved, very leafy, 6 – 10 inches high, slender, clothed with a whitish tomentum. Leaves 1 – 3 inches long and scarcely more than a line wide, with 3 prominent longitudinal nerves. Heads 5 – 20, in a rather loose simple or compound corymb. Involucre hemispherical ; the scales acute, somewhat carinate. Rays about 12. Pappus cinnamon-colored. Achenia attenuate at each end.

Sandy fields, Suffolk county, Long Island ; abundant near Easthampton. August – September.

2. CHRYSOPSIS MARIANA, *Nutt.* *Maryland Chrysopsis.*

Stem clothed with long hairs, erect, rigid, leafy, simple; leaves oblong or elliptical, membranaceous, entire or remotely denticulate, mucronulate, somewhat veiny; upper ones sessile, the lower narrowed at the base and somewhat petioled; heads usually few, in a nearly simple corymb; peduncles and involucre glandular and somewhat viscid; achenia obovate; exterior pappus setose-chaffy. — *Nutt. gen.* 2 *p.* 151; *Ell. sk.* 2. *p.* 335; *Beck, bot. p.* 177; *DC. prodr.* 5. *p.* 327; *Torr. & Gr. fl. N. Am.* 2. *p.* 254. Inula Mariana, *Linn. sp,* 2. *p.* 1240; *Michx. fl.* 2. *p.* 122; *Pursh, fl.* 2. *p.* 531; *Torr. compend. p.* 291 (§ Chrysopsis). Diplopappus Marianus, *Hook. compan. to bot. mag.* 1. *p.* 97; *Darlingt. fl. Cest. p.* 475.

Stem 1 – 2 feet high, stout and rigid, usually reddish, rather sparsely clothed with fine long hairs, which are somewhat deciduous. Cauline leaves 1 – 2 inches long, obtuse or acute, tipped with a minute glandular point, obscurely veiny; radical ones 2 – 4 inches long, spatulate-oblong. Heads nearly twice as large as in the preceding species, in a somewhat umbelled corymb; the pedicels 1 – 2 inches long, rather slender. Rays 14 – 18. Achenia brownish purple. Pappus tawny; the outer series bristly, somewhat scaly at the base.

Sandy fields and woods, Long Island and on the Island of New-York. August – October.

Subtribe II. BACCHARIDEÆ, Less. *Heads discoid, never radiate, diœcious or monœcious; the fertile flowers mostly filiform and truncate: central flowers sterile in the monœcious heads. Receptacle not chaffy. Anthers not caudate at the base.— Leaves alternate.*

13. BACCHARIS. *Linn.; Michx. fl.* 2. *p.* 125; *Endl. gen.* 2410.
PLOUGHMAN'S SPIKENARD.

[A name given by the Greeks to an aromatic plant of this genus, dedicated to *Bacchus.*]

Heads many-flowered, diœcious; the flowers all tubular and similar. Involucre somewhat hemispherical or oblong; the scales imbricated in several series. Receptacle naked, or rarely somewhat chaffy. Corolla, in the sterile flowers, somewhat dilated, and 5-cleft at the summit; in the fertile, filiform and somewhat truncate. Anthers exserted in the sterile flowers; entirely absent in the fertile. Style in the fertile flowers exserted, with the branches smooth; in the sterile, tipped with an ovate hairy appendage, often more or less abortive. Achenia ribbed or grooved. Pappus capillary; of the sterile plant in a single series, about the length of the involucre; of the fertile in one or several series, not thickened at the tip, usually much longer than the involucre.—Shrubs or very rarely herbs, commonly smooth, and resinous or viscous. Leaves mostly alternate, entire or toothed, often decurrent on the branches. Flowers mostly white.

1. BACCHARIS HALIMIFOLIA, *Linn.* *Groundsel-bush.*

Frutescent, smooth, minutely scurfy; leaves obovate, incisely toothed above, cuneate at the base, and attenuate into a short petiole; heads of the sterile plant somewhat globose, solitary or aggregated, of the fertile ovate-oblong, panicled; scales of the sterile involucre ovate, the inner ones elongated in the fertile.—*Linn. sp.* 2. *p.* 860; *Michx. fl.* 2. *p.* 125; *Pursh, fl.* 2. *p.* 523; *Ell. sk.* 2. *p.* 319; *Duham. arb.* (ed. 2.) 1. *t.* 60; *Torr. compend. p.* 288; *DC. prodr.* 5. *p.* 412; *Torr. & Gr. fl. N. Am.* 2. *p.* 258.

Stem 6 – 10 feet high, branched; the branches erect and angled, clothed (as well as the leaves) with very minute grayish scales, often exuding (particularly at the insertion of the leaves) a pale resinous substance. Leaves alternate, 2 – 3 inches long and 1 – 2 inches wide, thick and somewhat coriaceous, angularly toothed; the uppermost oval or lanceolate, and often nearly or quite entire. Heads in the sterile plant sessile, mostly aggregated at the summit of leafy branches; in the fertile loosely paniculate. Scales of the involucre closely imbricated, glutinous. Anthers very large. Pappus of the sterile plant plumose and somewhat pencillate; of the fertile very long and slender, simple.

Sandy beach of Long Island. September – October.

Subtribe III. TARCHONANTHEÆ, Less. *Heads discoid, never radiate, diœcious or heterogamous; the fertile flowers tubular-filiform, mostly truncate; when heterogamous, bearing the perfect or staminate flowers in the centre. Receptacle sometimes chaffy. Anthers caudate at the base. — Leaves alternate.*

14. PLUCHEA. *Cass. bull. philom.* 1817, *p.* 31; *DC. prodr.* 5. *p.* 449; *Endl. gen.* 2414.

MARSH FLEABANE.

[Named in commemoration of NOEL PLUCHE, author of "Spectacle de la Nature, &c." and other works.]

Heads many-flowered; the central flowers mostly perfect but sterile, dilated and 5-cleft; the others filiform, pistillate, in many series, truncate or minutely 2 – 3-toothed. Involucre imbricated. Receptacle flat, mostly naked. Anthers bicaudate. Style in the central flowers entire or minutely 2-toothed. Achenia somewhat cylindrical, angular or grooved. Pappus capillary, in a single series, slightly rough. — Mostly herbaceous and glandular plants, emitting a strong terebinthine and rather disagreeable odor. Leaves oval or oblong, serrate. Heads in crowded compound corymbs. Flowers mostly purplish.

1. PLUCHEA CAMPHORATA, *DC.* *Seaside Marsh Fleabane.*

Annual, minutely viscid-pubescent; leaves oblong-ovate or lanceolate-ovate, very acute, nearly sessile, repandly serrate, minutely pubescent and sprinkled with resinous dots; corymbs fastigiate; scales of the involucre pubescent and viscid, ciliate.— *Torr. & Gr. fl. N. Am.* 2.

p. 261. P. camphorata *and* marilandica, *DC. prodr.* 5. *p.* 452. Erigeron camphoratum, *Linn. sp.* 2. *p.* 864; *Willd. sp.* 3. *p.* 1960. Conyza Marilandica, *Michx. fl.* 2. *p.* 126; *Pursh, fl.* 2. *p.* 523; *Nutt. gen.* 2. *p.* 145; *Ell. sk.* 2. *p.* 320. C. camphorata, *Bigel. fl. Bost. p.* 299; *Torr. compend. p.* 288; *Beck, bot. p.* 176.

Stem erect, thick, 12 – 18 inches high, fastigiately branched above. Leaves 2 – 3 inches long, rather succulent, abruptly narrowed at the base, but hardly petioled. Heads at length depressed-globose, in numerous crowded fastigiate corymbs. Scales of the involucre purplish, and the flowers pale purple.

Salt marshes, Long Island, Island of New-York, and in Westchester county. August – October.

Subtribe IV. INULEÆ, Cass. *Heads mostly radiate and heterogamous, never diœcious. Receptacle not chaffy. Anthers caudate at the base. — Leaves alternate. Heads not glomerate. Ray-flowers of the same color as the disk.*

15. INULA. *Linn.; DC. prodr.* 5. *p.* 463; *Endl. gen.* 2426. *ELECAMPANE.*

[Origin of the name uncertain.]

Heads many-flowered; the ray-flowers in a single series, pistillate but sometimes infertile, ligulate or rarely somewhat tubular; those of the disk tubular, perfect. Involucre imbricate in several series. Receptacle flat or somewhat convex, naked. Anthers with 2 bristles at the base. Achenia terete or 4-sided. Pappus capillary, slightly rough. — Mostly perennial herbs, with clasping cauline leaves. Heads solitary or corymbose at the summit of the peduncle. Flowers yellow.

1. INULA HELENIUM, *Linn.* *Common Elecampane.*

Leaves velvety-tomentose underneath, acute, denticulate; the radical ones ovate, tapering into a long petiole, the cauline somewhat clasping; heads (large) pedunculate, corymbose. — *Linn. sp.* 2. *p.* 881; *Lam. ill. t.* 680; *Engl. bot. t.* 1546; *Pursh, fl.* 2. *p.* 531; *Bigel. fl. Bost. p.* 301; *Torr. compend. p.* 290; *Beck, bot. p.* 176; *Darlingt. fl. Cest. p.* 476; *DC. prodr.* 5. *p.* 463; *Torr. & Gr. fl. N. Am.* 2. *p.* 267.

Root perennial, thick and branching, mucilaginous. Stem 3 – 5 feet high, erect, stout, branching towards the summit. Leaves often a foot or more in length, and 4 – 6 inches broad. Heads of flowers on long terminal thick peduncles. Involucre woolly; the outer scales large and broadly ovate. Rays numerous, linear, 3-toothed at the extremity. Achenia 4-sided, smooth.

Road-sides, and about houses; introduced from Europe, and now thoroughly naturalized. July – August. The root is a popular domestic remedy for colds.

TRIBE IV. *SENECIONIDEÆ. Less.*

Heads heterogamous or heterocephalous (diœcious or monœcious). Style (in the perfect flowers) cylindraceous above; the branches linear, somewhat pencillate or hairy at the apex, either truncate or produced beyond the pencillum into a hairy cone; the stigmatic lines terminating in the base of the cone or appendage, not confluent. — Leaves opposite or alternate.

CONSPECTUS OF THE SUBTRIBES.

Subtribe I. MELAMPODINEÆ. Flowers diclinous: the staminate and pistillate either occupying the same or different heads, in the same or different plants.

Subtribe II. HELIANTHEÆ. Heads heterogamous and radiate, or homogamous and discoid. Receptacle partly or entirely chaffy. Pappus none or coroniform, or awned. Anthers blackish, without tails. — Leaves often opposite.

Subtribe III. HELENIEÆ. Heads mostly heterogamous. Pappus consisting of numerous distinct scarious chaffy scales in a single series, rarely wanting. — Leaves mostly alternate.

Subtribe IV. ANTHEMIDEÆ. Heads mostly heterogamous. Anthers not caudate. Pappus none or coroniform, rarely consisting of scales. Branches of the style truncate and bearded at the apex, rarely terminated by a conical point. — Leaves mostly alternate.

Subtribe V. GNAPHALIEÆ. Heads homogamous and discoid, or rarely heterogamous. Anthers caudate. Pappus capillary or setaceous, rarely wanting. — Leaves mostly alternate.

Subtribe VI. SENECIONEÆ. Heads homogamous or heterogamous, discoid or radiate. Anthers not caudate. Pappus capillary, or rarely wanting in the exterior flowers. — Leaves alternate.

Subtribe I. MELAMPODINEÆ, *DC. Flowers diclinous (none of them perfect); the pistillate and staminate either on different plants (diœcious), or in different heads of the same plant (heterocephalous), or in different flowers of the same head (monœcious). Anthers not caudate at the base. Receptacle almost always chaffy. Pappus none or somewhat coroniform, never consisting of bristles.*

CONSPECTUS OF THE GENERA.

* Heads monœcious.

16. POLYMNIA. Heads radiate. Achenia obovoid, not winged.

17. SILPHIUM. Heads radiate; the ray deciduous. Achenia winged, in more than one series. Pappus of 2 teeth or short awns.

18. IVA. Heads not radiate, bracteate. Anthers scarcely united. Receptacle chaffy. Flowers smooth.

** Heads heterocephalous, not radiate. Anthers distinct.

19. AMBROSIA. Fertile involucre 1-celled, 1-flowered, not spinous throughout.

20. XANTHIUM. Fertile involucre 2-celled; the scales of the sterile distinct.

16. POLYMNIA. *Linn.; DC. prodr. 5. p. 514; Endl. gen. 2475.* *LEAF-CUP.*

[*Polymnia* is the name of one of the Muses; but we know not why Linnæus applied it to this homely genus.]

Heads many-flowered; the ray-flowers few, pistillate; those of the disk tubular, sterile. Scales of the involucre in a double series; the exterior 4 – 5, large and foliaceous; the interior smaller, membranaceous, partly embracing the achenia. Receptacle chaffy, flat.

Style in the sterile flowers 2-cleft; the branches hairy. Achenia smooth, without pappus; of the disk abortive, terete; of the ray thick, obovoid, somewhat compressed, wingless. Pappus none. — Perennial viscid or glandular herbs, of a strong odor. Leaves opposite or sometimes alternate, large and membranaceous, angularly lobed, with stipule-like appendages at the base. Heads paniculate-corymbose. Flowers yellow or yellowish-white.

§ 1. *Rays inconspicuous, shorter than the involucre.*

1. POLYMNIA CANADENSIS, *Linn.* *Small-flowered Leaf-cup.*

Viscidly pubescent; leaves petioled, broadly rhomboidal, angularly lobed and somewhat hastate, the lower ones deeply pinnatifid or lyrate; involucre viscid and hairy; the exterior scales ovate-lanceolate, rather longer than the interior; rays obovate-cuneate. — *Linn. sp.* 2. *p.* 926, *and amœn. acad.* 3. *t.* 1. *f.* 5; *Lam. ill. t.* 711; *Michx. fl.* 2. *p.* 147; *Pursh, fl.* 2. *p.* 579; *Ell. sk.* 2. *p.* 471; *Beck, bot. p.* 208; *Darlingt. fl. Cest. p.* 476; *DC. prodr* 5. *p.* 515; *Torr. & Gr. fl. N. Am.* 2. *p.* 273.

Stem 2 – 5 feet high, erect, branching, roughly pubescent and a little viscid. Leaves very thin, pale green, 4 – 8 inches long and often nearly as broad as long, sometimes (particularly the upper ones) alternate, 3 – 5-lobed; the lobes widely spreading, repandly toothed. Heads about half an inch in diameter, loosely paniculate on slender peduncles. Inner scales of the involucre 5 – 8, oblong. Rays white or very pale yellow, obtusely 3-lobed at the apex. Disk pale yellow. Achenia smooth, dark brown, crowned with a protuberant ring.

Shady places along streams, and in ravines in rich soils; common in the western part of the State. August.

§ 2. *Rays flat, much longer than the involucre.*

2. POLYMNIA UVEDALIA, *Linn.* *Large-flowered Leaf-cup.*

Roughly pubescent; leaves sinuate-lobed, broadly ovate or deltoid, triplinerved; the lower ones very large and somewhat palmately lobed, narrowed at the base into a winged petiole; involucre slightly pubescent; the exterior scales oblong-ovate, obtuse, many times larger than the interior ones; rays linear-oblong. — *Linn. sp.* (ed. 2.) 2. *p.* 1303; *Lam. ill. t.* 711. *f.* 2; *Michx. fl.* 2. *p.* 147; *Pursh, fl.* 2. *p.* 579; *Ell. sk.* 2. *p.* 471; *Beck, bot. p.* 208; *Darlingt. fl. Cest. p.* 477; *DC. prodr.* 5. *p.* 515; *Torr. & Gr. fl. N. Am.* 2. *p.* 273.

Stem 3 – 6 feet high, smoothish below, more or less pubescent and branching above. Leaves thicker than in the preceding species, but membranaceous, roughish, minutely ciliate; the lower ones 6 – 12 inches long, sinuate and lobed; the winged petiole also lobed or pinnatifid. Heads few, in a panicle, two inches or more in diameter. Rays 10 – 15, 3-toothed at the apex, bright yellow. Disk dull yellow. Inner scales of the involucre 10 – 14. Achenia large, striate.

Dry rich soils; western part of the State. July – August.

17. SILPHIUM. *Linn.; Endl. gen.* 2474. *SILPHIUM.*

[From *silphi*, the name of a medicinal plant of Africa, transferred to this genus by Linnæus.]

Heads monœcious, many-flowered; the ray-flowers numerous, pistillate; the ligules in a single series, deciduous, but the flat ovaries in 2 – 3 rows: disk-flowers tubular, sterile. Scales of the involucre broad and leafy, appressed at the base, more or less squarrose at the summit; the innermost ones small and chaffy. Receptacle chaffy. Ligule of the ray-flowers elongated and spreading. Style in the sterile flowers undivided, elongated, hispid. Achenia of the ray broad and flat, winged and emarginated, crowned with two subulate or awned teeth; those of the ray with an obscure coroniform pappus. — Coarse perennial herbs, mostly rough or hispid, exuding a resinous juice. Leaves various. Heads large, corymbose, panicled or solitary. Flowers yellow.

1. SILPHIUM TRIFOLIATUM, *Linn.* *Ternate Silphium.*

Stem very smooth, and often glaucous; cauline leaves 3 – 4 in a whorl (the uppermost opposite), lanceolate, acute, remotely denticulate, rough (especially above), on short hispid petioles; heads loose, corymbose or paniculate; scales of the involucre smooth, ciliate; achenia obovate-oval, the broadish wings produced at the summit, and confluent with the subulate teeth. — *Linn. sp.* 2. *p.* 290; *Hook. bot. mag. t.* 3355; *Torr. & Gr. fl. N. Am.* 2. *p.* 277. S. trifoliatum, ternatum *and* atropurpureum, *Retz in Willd. sp.* 3. *p.* 2333; *Pursh, fl.* 2. *p.* 578; *Ell. sk.* 2. *p.* 466. S. ternatum, *and* (partly) S. trifoliatum, *DC. prodr.* 5. *p.* 513. S. ternifolium, *Michx. fl.* 2. *p.* 146.

Stem 4 – 6 feet high, terete or only slightly angled, striate, commonly purplish. Leaves 4 – 6 inches long and about an inch wide, undivided, varying from narrowly to ovate-lanceolate, sometimes nearly smooth underneath or on both sides; upper ones usually opposite but sometimes alternate, sessile. Heads rather small, with 12 – 18 rays. Awns of the achenia at length separating from the wings.

Near the Falls of Niagara (*Dr. Eddy*). August.

18. IVA. *Linn.; DC. prodr.* 5. *p.* 529; *Endl. gen.* 2485. *MARSH ELDER.*

[Origin of the name uncertain.]

Heads monœcious, not radiate. Fertile flowers 1 – 5, marginal, with a small tubular corolla: sterile flowers usually 7 – 20 (rarely fewer); the corolla somewhat campanulate or funnel-form, 5-toothed. Scales of the involucre 3 – 5, in a single series and often somewhat united, or 6 – 9 and imbricated. Receptacle small, chaffy. Anthers nearly or quite distinct. Style in the fertile flowers deeply 2-cleft, the branches linear; in the sterile undivided, usually radiate-pencillate at the apex. Achenia obovoid, somewhat compressed, without a pappus. — Herbaceous or shrubby plants, mostly growing near the salt water or in saline soils. Leaves opposite or the upper ones alternate, often thick or fleshy. Heads nearly sessile, deflexed, solitary or ternate in the axils of the upper leaves or foliaceous bracts, forming leafy spikes or racemes. Corolla greenish-white. Anthers yellow.

1. IVA FRUTESCENS, *Linn.* *Highwater-shrub.*

Suffrutescent, much branched, nearly smooth; leaves oval and oval-lanceolate, the lower ones opposite, the uppermost alternate, rather fleshy, coarsely serrate; heads depressed-globose, on short pedicels, solitary or in pairs in the axils of the bracteal leaves; scales of the involucre 5; chaff of the receptacle linear-filiform. — *Linn. sp.* 2. *p.* 989; *Lam. ill. t.* 166. *f.* 2; *Michx. fl.* 2. *p.* 184; *Willd. sp.* 3. *p.* 2386; *Pursh, fl.* 2. *p.* 580; *Ell. sk.* 2. *p.* 475; *Bigel. fl. Bost. p.* 317; *Beck, bot. p.* 209; *DC. prodr.* 5. *p.* 529; *Torr. & Gr. fl. N. Am.* 2. *p.* 287.

Stem 3 – 5 feet high, the branches annually dying down nearly to the ground, except in mild winters. Leaves thick and somewhat fleshy, 2 – 3 inches long and 1 – 2 inches wide, dull green, 3-nerved, with a minute appressed pubescence on both sides, and a little roughened with elevated dots; the teeth rather acute. Heads numerous, about two lines in diameter, greenish. Corolla of the fertile flowers minute; of the sterile flowers funnel-form. Achenia sprinkled with resinous dots.

Seacoast of Long Island, and borders of salt-marshes on the Island of New-York. August – September.

19. AMBROSIA. *Tourn.; DC. prodr.* 5. *p.* 524; *Endl. gen.* 2482. *RAG-WEED.*

[*Ambrosia* was the *food of the gods*. The coarse weeds of this genus were hardly entitled to so poetical a name.]

Sterile heads in racemes or spikes; the fertile at the base of the racemes, or in the axils of the upper leaves. STERILE FL. Involucre hemispherical or somewhat turbinate; the scales few and united. Receptacle naked, or with filiform chaff among the flowers. Anthers tipped with a bristle-like inflexed appendage. Ovary none, or only rudimentary: abortive style included, fimbriate or radiate at the summit. FERTILE FL. Involucre one-flowered, closed, pointed, usually armed near the summit with several tubercles or horns in a single series. Corolla and stamens none. Branches of the style filiform. Achenia ovoid. — Herbaceous weeds, destitute of beauty. Leaves mostly lobed. Heads without bracts; the sterile ones in simple racemes or spikes which terminate the branches: fertile heads bracteate, clustered at the base of the sterile spikes, or sessile in the axils of the upper leaves.

1. AMBROSIA TRIFIDA, *Linn.* *Three-lobed Ragweed.*

Hairy and rough; lerves deeply 3- (or often 5-) lobed; the lobes oval-lanceolate, acuminate, serrate, the petioles narrowly winged; sterile heads pedicellate; the involucre regular, with the margin crenate or nearly entire; fruit (fertile involucre) turbinate-obovoid, 6-ribbed, armed with 6 spines below the summit. — *Linn. sp.* 2. *p.* 987; *Michx. fl.* 2. *p.* 183; *Pursh, fl.* 2. *p.* 581; *Ell. sk.* 2. *p.* 476; *Bigel. fl. Bost. p.* 343; *Beck, bot. p.* 209; *Darlingt. fl. Cest. p.* 479; *DC. prodr.* 5. *p.* 479; *Hook. fl. Bor.-Am.* 2. *p.* 26; *Torr. & Gr. fl. N. Am.* 2. *p.* 290.

var. *integrifolia:* leaves ovate-oblong, acuminate, entire or the lower ones 3-lobed.—*Torr. & Gr. l. c.* A. integrifolia, *Muhl. in Willd. sp.* 2. *p.* 375; *Pursh, fl* 2. *p.* 580; *DC. l. c.; Beck, bot. l. c.*

Annual. Stem 4 – 8 feet high, obtusely 4-angled, branching above. Leaves 4 – 6 inches or more in length and nearly as broad, very rough on both sides. Sterile racemes 4 – 8 inches long, somewhat paniculate; the heads reflexed. Sterile involucre hairy and marked with 3 strong purple ribs on the outside, lobed or crenate. Flowers greenish-white. Receptacle naked. Fruit glomerate at the base of sterile racemes; when mature, nearly half an inch long, with a short conical point, around the base of which are 5 or 6 short erect spines or teeth.

Along fences and in low moist grounds; common. August – September.

2. AMBROSIA ARTEMISIÆFOLIA, *Linn.* *Hog-weed. Rag-weed. Bitter-weed.*

Stem more or less pubescent, paniculately branched; leaves bipinnatifid, minutely strigose and rough, pale or somewhat canescent underneath, the petioles ciliate; racemes spicate, paniculate; sterile heads on short pedicels, the involucre regular, crenate; receptacle naked; fruit obovoid, nearly smooth, pointed, armed with about six short acute teeth. — *Linn. sp.* 2. *p.* 988; *Lam. ill. t.* 765. *f.* 1; *Pursh, fl.* 2. *p.* 581; *Ell. sk.* 2. *p.* 477; *DC. prodr.* 5. *p.* 526; *Torr. & Gr. fl. N. Am.* 2. *p.* 291. A. elatior, *Linn. l. c.; Pursh, l. c.; Ell. l. c.; Bigel. fl. Bost. p.* 343; *Darlingt. fl. Cest. p.* 479; *DC. l. c.; Hook. fl. Bor.-Am.* 2. *p.* 309. A. absynthifolia, *Michx. fl.* 2. *p.* 183.

Annual. Stem 1 – 3 feet high; when small, nearly simple, at length much branched, a little rough. Leaves 2 – 4 inches long, bipinnately dissected; the lobes oblong, toothed or entire; petioles usually ciliate with long hairs. Sterile racemes long and slender; the heads on short but slender recurved pedicels. Involucre somewhat turbinate, not ribbed. Fruit small, solitary, or in glomerate, bracteate, or axillary clusters near the base of the staminate racemes; the spines sometimes very short, or almost wanting.

Cultivated grounds and dry fields; very common, and often a rather troublesome weed. August – October.

20. XANTHIUM. *Tourn.; Gært. fr. t.* 164; *Endl. gen.* 2480. *COCKLEBUR.*

[From the Greek, *xanthos*, yellow; in allusion to the color of some of the species.]

Heads in glomerate spikes, which are sterile at the summit. STERILE FL. numerous, in globose heads. Scales of the involucre distinct, in a single series. Receptacle cylindrical, chaffy. Corolla short, dilated, 5-toothed, somewhat hairy. Anthers distinct, connivent. Style abortive, undivided. FERTILE FL. Involucre ovoid or oblong, closed, coriaceous, invested with hooked prickles and 1 – 2-beaked at the summit, 2-celled, with a single flower in each cell. Corolla slender. Stamens none. Branches of the style linear, diverging. Achenia oblong, compressed, one in each cell of the involucre.—Annual weeds, with thick branching stems, and alternate lobed or toothed leaves.

§ 1. EUXANTHIUM, *DC.* *Fructiferous involucre with two beaks. Leaves cordate, lobed or toothed, without spines at the base.*

1. XANTHIUM STRUMARIUM, *Linn.* *Common Cocklebur*, or *Bur-weed.*

Fructiferous involucre oval, somewhat pubescent; the beaks straight; leaves 3 – 5-lobed, angularly toothed; the lobes rather acute. — *Linn. sp.* (ed. 2.) *p.* 1400; *Lam. ill. t.* 760. *f.* 1; *Engl. bot. t.* 2544; *Beck, bot. p.* 210; *Darlingt. fl. Cest. p.* 477; *DC. prodr.* 5. *p.* 523; *Torr. & Gr. fl. N. Am.* 2. *p.* 294.

var. *Canadense:* fructiferous involucre pubescent-scabrous, or at length smooth; the beaks straight, or slightly incurved; stem usually spotted. *Torr. & Gr. l. c.* X. macrocarpon, *β.* glabratum, *DC. l. c.* X. strumarium, *Michx. fl.* 2. *p.* 182.

Stem 1 – 2 feet high, angular, roughish-pubescent. Leaves 3 – 6 inches long, broadly cordate, more or less distinctly 3-lobed, the 3 principal nerves arising from the cuneate base of the sinus: petioles 2 – 4 inches long. Heads in short axillary glomerate spikes. Mature involucre or fruit nearly an inch long, clothed with short hooked prickles, and furnished at the summit with 2 much shorter spinous beaks.

Road-sides, barn-yards and waste places. A native of Europe; introduced in many places: the var. *Canadense*, in fields, in the western part of the State, and apparently indigenous. August – September.

2. XANTHIUM ECHINATUM, *Murray.* *Sea Cocklebur.*

Fructiferous involucre oval, very densely clothed with rigid slender prickles, which are strongly hispid as well as the incurved beaks; stem and petioles rough and spotted; leaves rough, broadly cordate, irregularly sinuate-toothed and obscurely lobed.—*Murr. comm. Gott.* 6. *p.* 32. *t.* 4; *Willd. sp.* 4. *p.* 374; *Pers. syn.* 2. *p.* 558; *Torr. & Gr. fl. N. Am.* 2. *p.* 295. X. maculatum, *Raf. in Sill. jour.* 1. *p.* 151. X. orientale, *Muhl. cat. p.* 89; *Nutt. gen.* 2. *p.* 186, not of *Linn.* X. macrocarpon, *Torr. compend. p.* 353; *Beck, bot. p.* 210; *DC. prodr.* 5. *p.* 523, in part. X. strumarium, *Bigel. fl. Bost. p.* 342.

About the size of the preceding species, but stouter and somewhat succulent. Stem marked with purple spots and stripes, strigosely pubescent. Leaves very rough, and finely sprinkled with resinous particles on both sides. Mature fruit about an inch and a quarter long, and much broader than in *X. strumarium*. The prickles are also more numerous, and, like the strong and usually incurved beaks, hispid with bristly hairs.

Sandy soils and borders of beaches, near salt or brackish water; common on Long Island, and on the banks of the Hudson as far north as Peekskill. August – October. De Candolle confounded this species with his *X. macrocarpum*, which differs in its smaller and narrower fruit, and in the much less numerous and stouter prickles.

§ 2. ACANTHOXANTHIUM, *DC. Fructiferous involucre with a single beak. — Leaves narrowed into a petiole, furnished with spines at the base.*

3. XANTHIUM SPINOSUM, *Linn.* *Thorny Cocklebur* or *Bur-weed.*

Spines 3-parted, slender; stem much branched; leaves entire or somewhat 3-lobed, acuminate, sparingly strigose-pubescent above, the under surface and veins of the upper canescent; involucre cylindrical-oblong, with a short straight beak. — *Linn. sp.* (ed. 2.) 2. *p.* 1400; *Lam. ill. t.* 655; *Ell. sk.* 2. *p.* 479; *Torr. compend. p.* 353; *Beck, bot. p.* 210; *Darlingt. fl. Cest. p.* 478; *DC. prodr.* 5. *p.* 523; *Torr. & Gr. fl. N. Am.* 2. *p.* 295.

Stem 2 – 3 feet high, strigosely pubescent. Leaves 2 – 3 inches long, ovate-lanceolate,

cuneate at the base, attenuate at the apex, often entire or only repand-toothed, but sometimes distinctly 3-lobed, pale green above except the midrib and larger veins, which are whitish like the under surface. Spines yellowish, about half an inch long. Heads axillary, solitary or few together. Fruit half an inch long; prickles slender.

Road-sides, waste places, etc.; not uncommon in the suburbs of New-York, and near Brooklyn on Long Island; but not yet noticed in the interior of the State. Introduced from Europe. September – October.

Subtribe II. HELIANTHEÆ, Less. *Heads heterogamous and radiate, rarely homogamous and discoid; the disk-flowers perfect. Receptacle chaffy. Corolla in the perfect flowers often with fleshy lobes. Anthers blackish, not caudate at the base. Pappus either wanting or coroniform, or awned and often somewhat chaffy, never capillary. — Leaves mostly opposite.*

CONSPECTUS OF THE GENERA.

Div. 1. HELIOPSIDEÆ. Rays fertile, rarely none. Achenia with a thick outer integument, not obcompressed.

21. HELIOPSIS. Rays 10 – 15. Pappus none. Receptacle conical.

Div. 2. EUHELIANTHEÆ. Rays sterile. Achenia never obcompressed.

22. RUDBECKIA. Achenia quadrangular. Chaff boat-shaped or concave. Pappus none, or minute and coroniform. Receptacle conical or elongated.

23. LEPACHYS. Achenia compressed, somewhat 1 – 2-winged, 1 – 2-toothed at the summit. Chaff truncate.

24. HELIANTHUS. Pappus of 2 chaffy awns and often 2 – 4 little scales, caducous. Involucre imbricated. Achenia wingless.

25. ACTINOMERIS. Pappus of 2 persistent scales. Achenia winged.

Div. 3. COREOPSIDEÆ. Rays sterile. Achenia obcompressed, not rostrate. Awns not hispid downward.

26. COREOPSIS. Achenia mostly smooth.

Div. 4. BIDENTIDEÆ. Rays sterile. Achenia either obcompressed or rostrate. Awns hispid downward.

27. BIDENS. Achenia with or without a beak. Awns persistent. Corolla of the disk 5-toothed.

Div. 1. HELIOPSIDEÆ, *DC. Rays pistillate and fertile, ligulate. Achenia never obcompressed: the exterior integument (calyx-tube) thick and firm, often separable from the interior. Pappus none or coroniform, frequently toothed or with one or more rigid awns.*

21. HELIOPSIS. *Pers. syn. 2. p. 473; Endl. gen. 2506.* OX-EYE.

[From the Greek, *helios*, the sun, and *opsis*, resemblance; so named in allusion to the form of the heads of flowers.]

Heads many-flowered; the rays pistillate: disk-flowers tubular, perfect. Scales of the involucre in 2 – 3 series; the exterior foliaceous and somewhat spreading; the interior short. Receptacle conical. Achenia partly embraced by the chaff, smooth, quadrangular, or 3-sided and convex externally in the ray-flowers. Pappus none, except a small truncate crown. — Perennial herbs, with rather large terminal heads. Leaves opposite, petioled, triplinerved, serrate. Flowers yellow.

1. HELIOPSIS LÆVIS, *Pers.* *Ox-eye.*

Stem smooth; leaves smoothish, varying from ovate to ovate-lanceolate or oblong-ovate, coarsely serrate.— *Pers. l. c.; Pursh, fl. 2. p. 563; Ell. sk. 2. p. 407; Beck, bot. p. 204; Darlingt. fl. Cest. p. 479; Hook. bot. mag. t. 3372; DC. prodr. 5. p. 550; Torr. & Gr. fl. N. Am. 2. p. 302.* Buphthalmum helianthoides, *Linn. sp. 2. p. 904; Michx. fl. 2. p. 130.* Silphium helianthoides, *Linn. l. c. p. 920* (excl. syn. *Gronov.*). Rudbeckia oppositifolia, *Linn. l. c.* Helianthus lævis, *Linn. sp. ed. 2.* (excl. syn. *Gronov.*).

Stem 2 – 3 feet high, rather slender, terete, striate. Leaves 2 – 4 inches long and 1 – 2 inches broad, acute or acuminate, somewhat truncate at the base (rarely cordate), or abruptly tapering into the petiole, usually nearly smooth, but sometimes the upper surface is rough with very short scattered hairs which originate in minute tubercles: petioles 6 – 8 lines long, margined. Heads on long peduncles, either solitary, or several in a loose fastigiate corymb. Exterior scales of the involucre variable in length, usually as long as the disk but often shorter, obtuse or rather acute, more or less foliaceous. Rays 10 – 15, three-fourths of an inch long, elliptical-oblong, orange-yellow, 2 – 3-toothed at the apex. Receptacle small. Chaff linear, rather obtuse. Achenia mostly 4-sided; but those of the disk sometimes unequal, pentangular.

Banks of streams and borders of swamps; rather common. July – September.

Div. 2. EUHELIANTHEÆ, Torr. & Gr. *Rays ligulate (neutral or imperfectly styliferous), sterile. Achenia often compressed, but never obcompressed. Pappus coroniform, toothed, or of 1 – 4 awns, chaffy scales or squamellæ, often wanting.*

22. RUDBECKIA. *Linn.; Endl. gen. 2511.* *RUDBECKIA.*

[Named in honor of OLAUS RUDBECK, professor of botany at Upsal in Sweden, who died in 1702.]

Heads many-flowered; rays neutral, in a single series; disk-flowers tubular or dilated, perfect, the teeth erect or spreading. Scales of the involucre leafy, somewhat in a double series, spreading. Receptacle conical or elongated; the chaff concave or boat-form. Branches of the style terminated by a short obtuse cone, or rarely with a narrow-headed appendage. Achenium nearly quadrangular. Pappus none or minute and coroniform, rarely somewhat conspicuous.—Mostly perennial herbs, with alternate leaves and rather large terminal heads. Rays yellow, spreading or drooping. Disk-flowers mostly dark purple.

1. RUDBECKIA HIRTA, *Linn.* *Large Hairy Rudbeckia.*

Plant very hairy or hispid; stem nearly simple, naked above; lower leaves spatulate-oval or oblong, triplinerved, denticulate, narrowed into a (usually winged) petiole; upper ones ovate-lanceolate, sessile; scales of the involucre linear; rays spreading; disk broadly conical; chaff of the receptacle linear, rather acute, hairy at the summit; pappus obsolete. — *Linn. sp. 2. p. 907; Michx. fl. 2. p. 143; Pursh, fl. 2. p. 574; Ell. sk. 2. p. 457; Sweet, Brit.*

fl. gard. t. 82 ; *Beck, bot. p.* 204 ; *Darlingt. fl. Cest. p.* 480 ; *DC. prodr.* 5. *p.* 556 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 307. R. serotina, *Nutt. in jour. acad. Phil.* 7. *p.* 80.

Root perennial. Stem 2 – 3 feet high, often simple, terete and striate. Radical and lower cauline leaves 2 – 4 inches long and about an inch wide, acute. Heads (including the rays) about 2½ inches in diameter, on very long and rather slender peduncles. Scales of the involucre variable in length, sometimes nearly as long as the ray, foliaceous, ciliate. Rays about 14, slightly 2-toothed at the apex, rather pale yellow. Disk dark purplish-brown. Achenia scarcely more than a line long, prismatic, dark purple. Pappus a minute margin.

Meadows, and along fences. Near Buffalo (*Dr. Sartwell*). July – August.

2. RUDBECKIA LACINIATA, *Linn.* *Tall Smooth Rudbeckia.*

Stem smooth (tall), branching ; leaves minutely hairy and rough, the radical and lowermost pinnately divided, the divisions (5 – 7) 3-lobed or incised ; upper leaves 3 – 5-parted, with ovate-lanceolate segments, uppermost undivided ; heads few, in a loose corymbose panicle ; disk conical, yellowish ; rays drooping, about twice the length of the involucre ; achenia crowned with a short toothed pappus, about twice the length of the boat-form truncate chaff. — *Linn. sp.* 2. *p.* 906 ; *Michx. fl.* 2. *p.* 144 ; *Pursh, fl.* 2. *p.* 575 ; *Ell. sk.* 2. *p.* 451 ; *Bart. fl. Am. Sept.* 1. *t.* 16 ; *Bigel. fl. Bost. p.* 316 ; *Beck, bot. p.* 205 ; *Darlingt. fl. Cest. p.* 481 ; *DC. prodr.* 5. *p.* 555 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 311.

Root perennial. Stem 4 – 8 feet high, terete, striate. Radical and lower leaves petioled, 6 – 8 inches or more in length, mostly with 5 deep lobes or segments, which are more or less incised and serrate ; the terminal segment usually 3-cleft. Heads on rather long peduncles. Scales of the involucre acute, smoothish. Rays oblanceolate, about an inch and a half long, slightly 2 – 3-toothed at the apex. Disk greenish-yellow, conical, and somewhat prolonged when mature. Chaff boat-form, truncate, pubescent at the summit.

Wet meadows ; rather common. July – September.

23. LEPACHYS. *Raf. in jour. phys.* 1819, *p.* 100 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 313.

LEPACHYS.

LEPACHYS and RATIBIDA, *Raf.* OBELISCARIA, *Cass. ; DC. ; Endl.*

[From the Greek, *lepis*, a scale, and *pachys*, thick ; in allusion to the chaff of the receptacle.]

Heads many-flowered ; the rays few, in a single series, neutral ; disk-flowers small, tubular, short, perfect, 5-toothed. Scales of the involucre few, linear or subulate, spreading, sometimes with an inner series of small obtuse scales similar to the chaff. Receptacle elongated, spiciform ; the chaff truncate or obtuse, thickened and hairy at the summit, partly embracing the achenia. Achenia of the ray triangular, hairy, abortive ; of the disk compressed, smooth or ciliate, with a wing-like margin on one or both sides, which is more or less produced into a tooth at the summit.— Perennial, strigosely pubescent herbs, with sulcate and some-

what branching stems. Leaves alternate, pinnately or bipinnately divided. Heads on long naked peduncles. Rays spreading or drooping, yellow, sometimes partly or entirely orange-brown. Disk cylindrical. Corolla, anthers and branches of the style fuscous.

1. LEPACHYS PINNATA, *Torr. & Gr.* *Tall Lepachys.*

Leaves pinnately divided; the divisions 3 – 7, lanceolate, acute at each end, sparingly serrate or entire, the uppermost undivided; disk oval-oblong, much shorter than the rays.—*Torr. & Gr. l. c.* L. pinnatifida *and* angustifolia, *Raf. l. c.* Rudbeckia pinnata, *Vent. hort. Cels. t.* 71; *Michx. fl.* 2. *p.* 144; *Bot. mag. t.* 2310; *Pursh, fl.* 2. *p.* 576; *Beck, bot. p.* 205. R. digitata, *Willd. sp.* 3. *p.* 2247; *Ell. sk.* 2. *p.* 451; *Beck, l. c.* R. tomentosa, *Ell. l. c.* (excl. syn.). Obeliscaria, *Cass.; DC. prodr.* 5. *p.* 558.

Stem 3 – 4 feet high, rough and pubescent with strigose hairs, deeply sulcate. Leaves usually with about five divisions, which are either coarsely serrate or entire. Rays bright yellow, 1½ – 2 inches long, slightly toothed at the extremity. Corolla of the disk-flowers with short recurved teeth. Achenia quadrangular, compressed, obscurely winged on each margin; the wing slightly produced at the summit.

Shore of Lake Erie (*Dr. Sartwell*). A common plant in the Western States, but hitherto found in only one locality in New-York.

24. HELIANTHUS. *Linn.; Endl. gen.* 2538. *SUNFLOWER.*

[From the Greek, *helios*, the sun, and *anthos*, a flower; in allusion to the form of the heads of flowers.]

Heads many-flowered: ray-flowers several or numerous, neutral; those of the disk perfect, commonly 10-nerved, with a short tube. Involucre imbricate in several series; the scales usually with foliaceous tips. Receptacle flat or convex; the persistent chaff embracing the achenia. Branches of the style hispid, with a subulate appendage. Achenia quadrangular or compressed, not winged or margined. Pappus consisting of two chaffy scales or awns, and often of two or more intermediate scales, deciduous.—Annual or perennial herbs, mostly rough, with opposite or alternate leaves which are commonly triplinerved. Heads on long peduncles. Rays yellow. Disk-flowers yellow or sometimes purple.

1. HELIANTHUS GIGANTEUS, *Linn.* *Tall Wild Sunflower.*

Stem rough and more or less hairy; leaves lanceolate, acuminate-serrate, slightly triplinerved, very rough above, strigosely hairy and somewhat rough underneath, narrowed and ciliate at the base, the lower opposite, upper ones alternate and scattered; scales of the involucre linear-lanceolate, attenuate at the summit, ciliate; pappus of two short lanceolate-subulate chaffy scales.—*Linn. sp.* 2. *p.* 905 (excl. syn. *Gronov.*); *Willd. sp.* 3. *p.* 2242; *Pursh, fl.* 2. *p.* 571; *Ell. sk.* 2. *p.* 426; *Hook. fl. Bor.-Am.* 1. *p.* 312; *Beck, bot. p.* 207; *Darlingt. fl. Cest. p.* 485; *Torr. & Gr. fl. N. Am.* 2. *p.* 325. H. altissimus, *Linn.?; Willd. l. c.*

var. *ambiguus:* leaves nearly all opposite and closely sessile, obtuse and rounded at the base. *Torr. & Gr. l. c.*

Root perennial. Stem 4 – 8 feet high, paniculately branched at the summit, terete, purplish, often smoothish below. Leaves 3 – 5 inches long, and from half an inch to an inch or more broad; in the var. *ambiguus*, there are often three or more leaves so close together that they appear verticillate. Rays 15 – 20, sulphur-yellow, about an inch in length.

Borders of swamps and in thickets; common. The var. *ambiguus*, in a copse near Brooklyn. August – September.

2. HELIANTHUS STRUMOSUS, *Linn.* *Wild Sunflower.*

Stem simple, or sparingly branched and roughly pubescent at the summit, smooth below; leaves opposite, ovate-lanceolate, with a long tapering point, serrate with small appressed teeth, very rough above, whitish and usually softly pubescent underneath, somewhat triplinerved, abruptly contracted into a short margined petiole; scales of the involucre lanceolate, acuminate, ciliate, equaling the disk, squarrose-spreading at the summit; rays mostly 10. — *Linn. sp.* 2. *p.* 905; *Torr. & Gr. fl. N. Am.* 2. *p.* 327. H. macrophyllus, *Willd. Berol. t.* 70; *DC. prodr.* 5. *p.* 587. H. decapetalus, *Darlingt. fl. Cest. p.* 483. H. altissimus, *DC. l. c.* (excl. *β.*).

Root perennial. Stem 2 – 4 feet high, slender, sprinkled with a few minute warts, a little branched at the summit in a fastigiate manner. Leaves 3 – 6 inches long and 1 – 2 inches wide, rather thick and firm, with indistinct serratures, green above; the under surface always whitish, and usually clothed more or less thickly with very short hoary pubescence, but sometimes smooth; the winged petiole about half an inch long. Heads of flowers commonly 3 – 5, on roughly pubescent stalks. Scales of the involucre conspicuously ciliate on the margin; the rest nearly smooth. Rays oblanceolate, an inch to nearly an inch and a half long, bright yellow. Achenia smooth. Pappus consisting usually of two subulate chaffy scales, and 2 – 3 much smaller ones.

Thickets, dry woods, and rocky banks of rivers; rather common. August – September.

3. HELIANTHUS DECAPETALUS, *Linn.* *Wild Sunflower.*

Stem smooth below, a little rough and branching above; leaves opposite, ovate or oblong-ovate, thin, abruptly contracted into a petiole, coarsely serrate, triplinerved; scales of the involucre narrowly lanceolate, loose, squarrose, hispidly ciliate, the exterior longer than the disk; rays 8 – 10. — *Linn. sp.* 2 *p.* 905; *Hook. bot. mag. t.* 3510; *DC. prodr.* 5. *p.* 588; *Torr. & Gr. fl. N. Am.* 2. *p.* 328. H. strumosus *and* H. tenuifolius, *Ell. sk.* 2. *p.* 420. H. multiflorus (partly), *and* H. frondosus, *Hook. fl. Bor.-Am.* 2. *p.* 312. H. frondosus, *Darlingt. fl. Cest. p.* 483.

Stem 3 – 5 feet high, slender, striate. Leaves 4 – 6 inches long and 1 – 3 inches wide, green on both sides, but rather paler underneath; the upper surface rough with very short scattered hairs: petiole an inch or more in length, slightly winged. Heads terminating the fastigiate branches. Scales of the involucre loose and spreading or recurved, often somewhat falcate. Rays usually about 8, narrowly lanceolate, about an inch in length. Pappus of two subulate chaffy awns.

Banks of streams; rather rare. August – September.

4. HELIANTHUS DIVARICATUS, *Linn.* *Small Rough-leaved Sunflower.*

Stem smooth and glaucous, simple or 2 – 3-forked above; leaves opposite, ovate-lanceolate, sessile, divaricate, rounded at the base, tapering to the point, 3-nerved, very rough above and scabrous-pubescent underneath; scales of the involucre lanceolate, acuminate, ciliate, equaling the disk; rays 8 – 12. — *Linn. sp.* 2. *p.* 906; *Bigel. fl. Bost. p.* 315; *Torr. compend. p.* 309; *Darlingt. fl. Cest. p.* 482; *DC. prodr.* 5. *p.* 587; *Torr. & Gr. fl. N. Am.* 2. *p.* 329. H. truncatus, *Schwein. in Ell. sk.* 2. *p.* 416.

Root perennial. Stem 2 – 5 feet high, often purple, slender, finely striate. Leaves 3 – 5 inches long and an inch or more in breadth, rough with very short stiff hairs on the upper surface, a little strigose on the veins underneath; the base very obtuse and rounded. Heads few (mostly 3 – 5), small, in a fastigiate corymb; the peduncles hairy and rough. Rays bright yellow. Pappus of two short subulate scales.

Thickets and borders of woods; common. August – September.

5. HELIANTHUS TUBEROSUS, *Linn.* *Jerusalem Artichoke.*

Root creeping, bearing an oblong tubercle; stem erect, branching, rough; leaves alternate, petiolate, triplinerved, rough, serrate, the lower ones cordate-ovate, upper ones ovate, acuminate; petioles ciliate at the base; scales of the involucre linear-lanceolate, ciliate (*DC.*). — "*Jacq. Vind.* 2. *t.* 161;" *Beck, bot. p.* 203; *Darlingt. fl. Cest. p.* 484; *DC. prodr.* 5. *p.* 590.

Stem 5 – 8 feet high, stout. Leaves 4 – 8 inches long and 3 – 4 inches wide, abruptly contracted and cuneate at the base; the lower ones opposite: petiole 1 – 3 inches long. Heads of flowers rather large, on rough and hairy peduncles. Rays numerous, rather bright yellow. Pappus of two subulate chaffy scales.

Borders of fields, and in cultivated grounds; almost naturalized in a few localities. August – September.

25. ACTINOMERIS. *Nutt. gen.* 2. *p.* 181 ; *Endl. gen.* 2530. ACTINOMERIS.

[Named from the Greek, *actin*, a ray, and *meris*, a part ; the heads being imperfectly radiate.]

Heads many-flowered ; the ray-flowers 4 – 14, elongated or sometimes wanting. Scales of the involucre numerous, foliaceous, nearly equal, mostly shorter than the disk. Receptacle convex or conical, chaffy ; the chaff embracing the outer margin of the achenia. Achenia compressed, obovate, mostly winged, flat, crowned with 2 nearly smooth persistent awns.— Tall branching perennial herbs. Leaves alternate and opposite, ovate or lanceolate-serrate, attenuate at the base and decurrent. Heads corymbose. Flowers yellow.

1. ACTINOMERIS SQUARROSA, *Nutt.* *Squarrose Actinomeris.*

Stem pubescent, winged above ; leaves alternate, oblong-lanceolate, serrate, tapering at each end, rough above, hairy or smoothish underneath ; heads in a loose corymbose panicle ; scales of the involucre in two series ; the exterior linear-spatulate, reflexed, shorter than the disk ; rays mostly 4 – 8, irregular ; disk squarrose in fruit ; awns stout, much shorter than the broadly winged achenium. — *Nutt. gen.* 2. *p.* 181 ; *Ell. sk.* 2. *p.* 413 (excl. *β.*) ; *Torr. compend. p.* 313 ; *Beck, bot. p.* 206 ; *Darlingt. fl. Cest. p.* 481 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 335. A. alternifolia, *DC. prodr.* 5. *p.* 575 (excl. *β.*). Coreopsis alternifolia, *Linn. sp.* 2. *p.* 909 ; *Willd. sp.* 3. *p.* 2257 ; "*Jacq. hort. Vindob. t.* 110." C. procera, *Ait. Kew.* (ed. 1.) 3. *p.* 258. Verbesina Coreopsis, *Michx. fl.* 2. *p.* 134 (excl. *β.*) ; *Pursh, fl.* 2. *p.* 565.

Stem 4 – 8 feet high, yellowish, somewhat winged by the decurrent bases of the leaves, smooth below, pubescent above. Leaves coarsely serrate, with a long tapering base, but not petioled, feather-veined ; the lower ones very large. Heads numerous, about as large as in *Helenium autumnale*. Rays usually not more than 5 or 6, three-fourths of an inch long, golden yellow, oblong, obtuse and slightly notched at the apex. Disk-flowers yellow ; the limb inflated, longer than the tube. Branches of the style with a subulate-conical appendage. Receptacle small, globose. Achenia brown and somewhat hispid on the sides, with a pale broad waved margin ; the awns short and spreading.

Borders of Crooked Lake, Yates county (*Dr. Sartwell*). August – September. A variety with opposite leaves occurs in the Western States.

Div. 3. COREOPSIDEÆ, *DC.* *Rays neutral, ligulate, or very rarely wanting. Achenia obcompressed, not beaked. Pappus* 2- *(or rarely* 4-*) toothed or awned, or none; the awns or teeth often hispid upward, but never downward.*

26. COREOPSIS. *Linn.; Torr. & Gr. fl. N. Am.* 2. *p.* 338. *TICK-SEED SUNFLOWER.*

COREOPSIS, CHRYSOSTEMMA and CALLIOPSIS, *Less., DC. &c.*

[From the Greek, *koris*, a bug, and *opsis*, resemblance; the achenium having the appearance of some insect.]

Heads many-flowered; the rays about 8 (rarely wanting), neutral; disk-flowers perfect, with a slender tube and campanulate 5-toothed limb. Involucre double, each of about 8 scales; the exterior foliaceous, narrowed, usually more or less spreading; the interior broader and often rather membranaceous, mostly deciduous with the fruit. Achenia obcompressed, not rostrate or tapering at the summit, often winged, 2-awned, 2-toothed or with 2 minute scales, sometimes naked at the summit; the teeth or awns usually hispid upwards, but never downwards. — Herbaceous plants, with opposite or sometimes alternate leaves which are very often ternately or pinnately divided. Heads terminal, solitary or corymbose. Rays commonly yellow. Anthers blackish.

§ 1. EUCOREOPSIS, Torr. & Gr. *Branches of the style terminated by an acute cone, or an abrupt subulate appendage: corolla of the ray and disk yellow.*

1. COREOPSIS TRICHOSPERMA, *Michx.* *Tick-seed Sunflower.*

Smooth; stem obscurely 4-angled; leaves opposite, on short petioles, pinnately 5 – 7-parted; the divisions linear-lanceolate, serrated or incised, the uppermost leaves often 3 – 5-cleft and nearly sessile; heads paniculately corymbed; scales of the exterior involucre about the length of the interior, linear or spatulate, slightly ciliate; achenia cuneiform-oblong, hispid above, crowned with 2 triangular hispid teeth or short stout awns. — *Michx. fl.* 2. *p.* 139; *Pursh, fl.* 2. *p.* 568; *Ell. sk.* 2. *p.* 439; *Bigel. fl. Bost. p.* 315; *Beck, bot. p.* 206; *DC. prodr.* 5. *p.* 372; *Torr. & Gr. fl. N. Am.* 2. *p.* 340. C. aurea, *Lindl. bot. reg. t.* 1228, not of *Ait.*

Root biennial. Stem $1\frac{1}{2}$ – 3 feet high, corymbosely paniculate above. Leaves membranaceous, 3 – 6 inches long; the divisions 2 – 4 lines wide, with very acute and somewhat distant serratures. Heads on long slender peduncles. Rays bright yellow, oblong, obtuse, entire, about three-fourths of an inch long. Achenia with a prominent ridge on each side, usually crowned with triangular acute teeth, which are sometimes produced into very short awns.

Swamps, particularly those in which the *Cupressus thuyoides* occurs; Long Island. Not found elsewhere in the State. August – October.

2. COREOPSIS ROSEA, *Nutt.* (Plate LXVII.) *Small Rose-colored Coreopsis.*

Smooth; stem leafy; leaves opposite, narrowly linear, entire, obscurely 1-nerved; heads on rather short peduncles; scales of the exterior involucre much shorter than the interior; rays about 8 (rose-color), oblong, slightly 3-toothed; achenia oblong, wingless, crowned with an obscure truncate coroniform pappus.—*Nutt. gen.* 2. *p.* 179; *Bigel. fl. Bost. ed.* 3. *p.* 338; *Bart. fl. Am. Sept.* 1. *t.* 12; *Torr. compend. p.* 312; *Torr. & Gr. fl. N. Am.* 2. *p.* 348. Calliopsis rosea, *Spreng. syst.* 3. *p.* 611; *Beck, bot. p.* 205.

Perennial. Stem about a foot high, slender, usually with a few erect branches. Leaves 1 – 2 inches long and scarcely a line wide, slightly ciliate at the connate base; the axils fasciculate. Heads few, (including the rays) about an inch in diameter. Peduncles 1 – 2 inches long. Disk yellowish.

Sandy swamps, near Sag-Harbor, Long Island (*Mr. S. B. Buckley*). August.

Div. 4. BIDENTIDEÆ, Less., DC. *Rays neutral, strap-shaped, or sometimes wanting. Achenia obcompressed, or often tetragonal or terete and rostrate. Pappus of* 2 – 4 (*rarely* 5 – 6) *retrorsely barbed or hispid awns.*

27. BIDENS. *Linn.; Endl. gen.* 2541. *BUR-MARIGOLD.*

[From the Latin, *bidens*, having two teeth; in allusion to the two awns of the achenia.]

Heads many-flowered; the ray-flowers (3 – 8) neutral, often small or wanting; those of the disk tubular, perfect. Involucre double, often dissimilar; the exterior frequently large and foliaceous. Receptacle flattish; the chaff deciduous with the fruit. Achenia obcompressed, or slender and somewhat 4-sided, often attenuate or rostrate at the summit, crowned with 2 – 4 (rarely 5 – 6) downwardly barbed or hispid persistent awns. — Annual or sometimes perennial weed-like herbs, with opposite, serrate, incised or divided leaves. Flowers mostly yellow or yellowish.

§ 1. PLATYCARPÆA, *DC. Achenia flat, oval or cuneiform, not attenuated at the summit; the margins usually ciliate or hispid.*

1. BIDENS FRONDOSA, *Linn.* *Common Bur-marigold. Stick-tight.*

Lower leaves pinnately 5-parted, upper ones 3-parted; the divisions lanceolate, tapering at the base, serrate, the under surface and the petioles often a little hairy; heads discoid, pedicellate; scales of the exterior involucre 2 – 6 times longer than the head, acutish, ciliate towards the base; achenia obovate-cuneiform, 2-awned, pubescent on the sides. — *Linn. sp.* (ed. 2.) 2. *p.* 1166; *Michx. fl.* 2. *p.* 136; *Pursh, fl.* 2. *p.* 566; *Ell. sk.* 2. *p.* 431; *Bigel. fl. Bost. p.* 294; *Beck, bot. p.* 207; *Hook. fl. Bor.-Am.* 1. *p.* 314; *Darlingt. fl. Cest. p.* 486; *DC. prodr.* 5. *p.* 594; *Torr. & Gr. fl. N. Am.* 2. *p.* 350.

Annual. Stem 2 – 6 feet high, often dark purple, branched, sparsely hairy. Leaves pinnately divided, thin; the lower ones usually with 5 divisions, the upper very generally 3-parted: divisions 2 – 4 inches long, rather coarsely and acutely serrate, attenuate at the base into short stalks: common petiole 1 – 3 inches long. Heads never radiate. Scales of the exterior involucre unequal and variable in length, sometimes spatulate and rather obtuse; inner scales ovate-lanceolate, scarious, brownish. Flowers greenish-yellow. Achenia ciliate upward, except near the summit: awns longer than the somewhat persistent corolla.

Moist fertile soils; common in cultivated fields, etc. July – September. A troublesome weed. The ripe achenia of this and other species adhere to the clothes, and to the coats of animals, by their barbed awns.

2. BIDENS CONNATA, *Muhl.* *Swamp Beggar-ticks.*

Leaves lanceolate or oblong-lanceolate, acute or acuminate, sharply serrate, tapering into margined petioles, slightly connate at the base, the lower ones often ternately divided, the lateral segments connate at the base and decurrent on the petiole; heads discoid, mostly on short peduncles, erect; scales of the exterior involucre longer than the head, mostly obtuse, scarcely ciliate; achenia narrowly cuneiform, smooth, with the margin hispid downward, 2 – 4- (commonly 3-) awned. — *Muhl. in Willd. sp.* 3. *p.* 1718; *Pursh, fl.* 2. *p.* 566; *Ell. sk.* 2. *p.* 430; *Torr. compend. p.* 312; *Beck, bot. p.* 207; *Hook. fl. Bor.-Am.* 1. *p.* 314; *DC. prodr.* 5. *p.* 594; *Torr. & Gr. fl. N. Am.* 2. *p.* 352. B. tripartita, *Bigel. fl. Bost. p.* 294. B. petiolata, *Nutt. in jour. acad. Phil.* 7. *p.* 99; *Darlingt. fl. Cest. p.* 486.

Annual. Stem 1 – 2 feet or more high, smooth, branching, purple. Leaves often all undivided, of a thin texture, acuminate at each end. Exterior involucre foliaceous, variable in length, often more than twice as long as the disk. Corolla greenish-yellow; the rays always wanting. Awns stout, longer than the corolla.

Low wet places; common. August – September.

3. BIDENS CERNUA, *Linn.* *Swamp Beggar-ticks.*

Leaves all undivided, lanceolate, unequally serrate, the upper ones slightly connate; heads (discoid or radiate) on slender peduncles, often nodding; exterior involucre longer than the head; achenia obovate-cuneiform, 4-awned, the margin hispid downward. — *Linn. sp.* 2. *p.* 832; *Engl. bot. t.* 1114; *Pursh, fl.* 2. *p.* 566; *Torr. compend. p.* 311; *Beck, bot. p.* 207; *Hook. fl. Bor.-Am.* 2. *p.* 314; *DC. prodr.* 5. *p.* 595; *Torr. & Gr. fl. N. Am.* 2. *p.* 352. B. minima, *Linn.* Coreopsis Bidens, *Linn.* (the radiate form).

Annual. Stem 6 inches to 2 feet high, smooth, or sometimes slightly hairy towards the summit. Leaves 3 – 6 inches long, smooth, thin, coarsely serrate, attenuate at the base, acuminate. Heads commonly discoid, but sometimes more or less radiate: peduncles 1 – 3 inches long. Scales of the exterior involucre foliaceous, oblanceolate, acute, often more than

twice the length of the disk. Achenia nearly smooth on the sides: awns rather slender, the intermediate ones shorter than the others.

Low wet places; Penn-Yan (*Dr. Sartwell*). August – September. This species is not rare in the State of New-Jersey.

4. BIDENS CHRYSANTHEMOIDES, *Michx.* *Large-flowered Bur-marigold.*

Leaves all undivided, lanceolate, more or less connate, equally and rather remotely serrate; heads with large rays; scales of the exterior involucre somewhat longer than the disk and shorter than the rays, ciliate-serrulate, particularly below the middle; interior scales membranaceous, with a broad colored margin; achenia cuneate, with the margin hispid downward; awns 2 – 4.— *Michx. fl.* 2. *p.* 136; *Pursh, fl.* 2. *p.* 566; *Ell. sk.* 2. *p.* 430; *Bigel. fl. Bost. p.* 294; *Torr. compend. p.* 311; *Beck, bot. p.* 207; *Darlingt. fl. Cest. p.* 485; *DC. prodr.* 5. *p.* 595; *Torr. & Gr. fl. N. Am.* 2. *p.* 352.

Annual? Stem 1 – 2 feet high, erect or reclined at the base, smooth, branching. Leaves 3 – 6 inches long, varying from broadly to narrow lanceolate, tapering to each end, sessile. Heads erect or somewhat nodding. Rays 8 – 10, obovate-oblong, bright orange-yellow, variable in length, but usually about twice as long as the exterior involucre. Awns of the achenia two, with one or two shorter intermediate ones.

Swamps and margins of ponds; common. August – November. Cattle seem to be fond of this plant. The flowers are very conspicuous late in the season, in wet meadows.

5. BIDENS BECKII, *Torr.* (Plate LXVIII.) *Water Marigold.*

Stem simple, sparingly branched; leaves mostly submersed, dichotomously divided into numerous capillary segments; the emersed ones few, lanceolate, serrate or pinnatifidly laciniate; heads solitary, erect, radiate, terminal; scales of the exterior involucre few, oval or oblong, shorter than the interior and somewhat resembling them, several times shorter than the rays; achenia smooth, 4 – 6-awned. — *Torr. in Spreng. neue entd.* 2. *p.* 135, *and syst.* 3. *p.* 455; *Torr. compend. p.* 312; *Beck, bot. p.* 207; *DC. prodr.* 5. *p.* 595; *Torr. & Gr. fl. N. Am.* 2. *p.* 353.

Perennial. Stem 2 – 6 feet or more in length, sometimes producing short branches from the axils of the upper leaves, rather stout. Submersed leaves appearing verticillate, the primary divisions extending to the base, the segments very numerous and as fine as horse-hair; the lowest emersed ones pinnatifid; uppermost undivided, sharply serrate. Heads on short terminal peduncles. Scales of the inner involucre lanceolate, acute. Rays golden yellow. Achenia narrowly oblong. Awns commonly 6, unequal, hispid above, smooth below.

In lakes, ponds and slow-flowing streams. First discovered in a pond near Schenectady, by *Dr. L. C. Beck*. Schuyler's lake, and other waters in the western part of the State (*Prof. Gray* and *Prof. Aikin*). Ponds near Augusta (*Dr. Douglas*). August.

§ 2. PSILOCARPÆA, *DC.* *Achenia linear-tetragonal, attenuate or rostrate, smooth or upwardly hairy.*

6. BIDENS BIPINNATA, *Linn.* *Spanish Needles.*

Stem quadrangular; leaves petioled, 1 – 3-pinnately divided, the segments lanceolate or oblong-ovate; heads on long slender peduncles, usually with 3 – 4 small rays; exterior scales of the involucre linear, spreading, about the length of the interior; achenia linear, elongated and slender, nearly smooth, mostly 4-awned. — *Linn. sp.* 2. *p.* 832; *Michx. fl.* 2. *p.* 135; *Pursh, fl.* 2. *p.* 567; *Ell. sk.* 2. *p.* 432; *Torr. compend. p.* 312; *Beck, bot. p.* 207; *Darlingt. fl. Cest. p.* 487; *DC. prodr.* 5. *p.* 603; *Torr. & Gr. fl. N. Am.* 2. *p.* 354.

Annual. Stem 1 – 2 feet high, slender, smooth, branching. Leaves smooth, on slender petioles. Heads small, in a loose paniculate corymb. Interior scales of the involucre lanceolate. Rays 3 – 4, obovate, bright yellow. Disk-flowers yellow, 15 – 20. Achenia a little tapering upward, crowned with 4 unequal slightly spreading awns.

Waste places, road-sides and cultivated grounds; common in the neighborhood of New-York and along the Hudson, but rare in the interior of the State. July – October. Probably introduced from the Southern States.

Subtribe III. HELENIEÆ, Cass., DC. *Heads mostly heterogamous and radiate; the disk-flowers perfect, but sometimes sterile: receptacle naked or chaffy. Anthers often blackish; the lobes frequently produced at the base, but scarcely caudate. Pappus chaffy; the scarious scales several or numerous and distinct, or sometimes none. — Leaves alternate or opposite.*

28. HELENIUM. *Linn.; Lam. ill. t.* 688; *Endl. gen.* 2603. *FALSE SUNFLOWER.*

[Named after *Helen*, the wife of Menelaus, who used a plant allied to this as a cosmetic.]

Heads many-flowered, radiate; the ray-flowers in a single series, pistillate, ligulate, cuneiform, 3 – 5-cleft at the summit. Disk-flowers with a very short proper tube, and a large inflated 4 – 5-toothed limb. Scales of the involucre in two series; the exterior linear or subulate, foliaceous, spreading or reflexed; the interior much shorter and chaffy. Receptacle convex, chaffy. Branches of the style obtuse. Achenia obovate-turbinate, villous on the ribs. Pappus of 5 – 8 chaffy and often awned scales. — Branching herbs, with alternate leaves which are decurrent on the angular stem. Flowers yellow, very bitter; the rays often purplish toward the base.

1. HELENIUM AUTUMNALE. *Sneeze-weed.*

Smoothish; leaves lanceolate, serrate, strongly decurrent; scales of the involucre linear-subulate; rays flat, 3 – 5-toothed at the extremity, longer than the globose disk; scales of the pappus ovate-lanceolate, cuspidate, about one-third the length of the corolla. — *Linn. sp.*

2. *p.* 866; *Michx. fl.* 2. *p.* 133; *Lam. ill. t.* 688; *Pursh, fl.* 2. *p.* 560; *Ell. sk.* 2. *p.* 316; *Bart. fl. Amer. Sept. t.* 26; *Torr. compend. p.* 308; *Beck, bot. p.* 201; *Darlingt. fl. Cest. p.* 487; *Hook. bot. mag. t.* 2994, *and fl. Bor.-Am.* 1. *p.* 317; *DC. prodr.* 5. *p.* 666; *Torr. & Gr. fl. N. Am.* 2. *p.* 384.

Perennial. Stem 2 – 3 feet high, with numerous slightly winged and minutely pubescent angles, corymbosely branched above. Leaves 2 – 4 inches long, of a dull grayish-green color, punctate, attenuate at each end. Heads numerous, an inch or more in diameter. Exterior involucre of 8 – 12 lanceolate-acute scales. Rays mostly drooping. Disk half an inch or more in diameter, greenish yellow; the teeth of the corolla glandularly bearded.

Low grounds and borders of streams; common. August – September. The whole plant is bitter, and the flowers have the properties of chamomile. In a powdered state, it is sometimes used to excite a discharge from the nose.

Subtribe IV. ANTHEMIDEÆ, Cass., DC. *Heads mostly heterogamous; the ray-flowers pistillate or rarely neutral, either ligulate or tubular: disk-flowers perfect, or sometimes staminate and infertile. Anthers not caudate. Branches of the style truncate and mostly bearded, very rarely with a conical point. Receptacle naked or chaffy. Pappus none, or sometimes small and coroniform, rarely consisting of chaffy scales.*

CONSPECTUS OF THE GENERA.

Div. 1. EUANTHEMIDEÆ. Receptacle chaffy. Rays ligulate, or rarely wanting: disk-flowers perfect.

29. MARUTA. Rays neutral. Achenia obovoid, ribbed.

30. ANTHEMIS. Rays pistillate. Achenia terete or quadrangular.

31. ACHILLEA. Rays pistillate. Achenia obcompressed, margined.

Div. 2. CHRYSANTHEMEÆ. Receptacle naked. Rays ligulate or rarely wanting: disk-flowers perfect.

32. LEUCANTHEMUM. Involucre depressed, imbricated. Receptacle flat or convex. Achenia somewhat terete, striate, without a pappus, or those of the ray with a coroniform or unilateral pappus.

Div. 3. COTULÆ and ARTEMISIEÆ. Receptacle naked. Heads discoid, homogamous or heterogamous; the flowers all tubular; those of the disk perfect, but sometimes infertile.

33. TANACETUM. Heads homogamous or heterogamous. Achenia angled or ribbed, with a large epigynous disk. Pappus none or minute.

34. ARTEMISIA. Heads heterogamous or homogamous. Achenia obovoid, crowned with a small disk. Pappus none.

Div. 1. EUANTHEMIDEÆ, *DC. Receptacle chaffy. Heads mostly radiate; the rays ligulate, in a single series: the disk-flowers perfect.*

29. MARUTA. *Cass.; DC. prodr.* 6. *p.* 13. *FETID CHAMOMILE.*

[Origin of the name uncertain.]

Heads many-flowered; the rays neutral (rarely almost wanting), continuous with the sterile ovary. Scales of the hemispherical involucre imbricated in few series, shorter than the disk. Receptacle conical, chaffy throughout or only at the summit. Achenia obovoid or

obpyramidal, ribbed, smooth, without a pappus. — Annual fœtid weeds, with tripinnately divided leaves, and solitary heads terminating the branches. Rays white, often deflexed; the disk yellow.

1. MARUTA COTULA, *DC.* *Common Fetid Chamomile. May-weed.*

Smoothish; scales of the involucre with whitish margins; receptacle conical, chaffy at the summit; the chaff subulate. — *DC. prodr.* 6. *p.* 13; *Torr. & Gr. fl. N. Am.* 2. *p.* 408. Anthemis Cotula, *Linn. sp.* 2. *p.* 894; *Engl. bot. t.* 1972; *Nutt. gen.* 2. *p.* 171; *Bigel. fl. Bost. p.* 314; *Torr. compend. p.* 308; *Bart. veg. mat. med. t.* 14; *Beck, bot. p.* 212; *Hook. fl. Bor.-Am.* 1. *p.* 318; *Darlingt. fl. Cest. p.* 489.

Whole plant fetid. Stem 9 – 12 inches high, erect, much branched. Leaves pale green, slightly pubescent; ultimate segments narrowly linear, acute. Heads on slender peduncles. Scales of the involucre lanceolate, hairy. Rays about 12, at length reflexed. Disk large and strongly convex. Achenia oblong, usually tuberculate in lines.

Farm-yards, road-sides, etc. June – November. Introduced from Europe. A troublesome weed, extensively naturalized in many parts of the State.

30. ANTHEMIS. *Linn.; DC. prodr.* 6. *p.* 4; *Endl. gen.* 2639. *CHAMOMILE.*

[From the Greek, *anthemos*, a flower; in allusion to the profusion of its blossoms.]

Heads many-flowered; the rays pistillate. Scales of the involucre imbricated in few series. Receptacle convex or conical, with membranaceous chaff among the flowers. Achenia terete or very obtusely quadrangular, striate or smooth, without a pappus or with a minute crown. — Odorous herbs, with pinnately dissected leaves. Heads on naked terminal peduncles. Rays mostly white; the disk yellow.

1. ANTHEMIS ARVENSIS, *Linn.* *Wild Chamomile.*

Diffuse, erect, pubescent; leaves pinnately parted, the lobes linear-lanceolate, approximate, and with the teeth very acute; the branches leafless at the summit, bearing solitary heads; scales of the involucre with white scarious margins, obtuse; chaff of the conical receptacle lanceolate, acuminate; achenia crowned with a very short, somewhat toothed margin (*DC. l. c.*). — *Engl. bot. t* 602; *Pursh, fl.* 2. *p.* 562; *Torr. compend. p.* 307; *Beck, bot. p.* 212; *Darlingt. fl. Cest. p.* 488; *Torr. & Gr. fl. N. Am.* 2. *p.* 408.

Annual. Stem about a foot high, erect, branching. Leaves clothed with a grayish pubescence, bipinnately dissected; the segments linear and acute. Heads (including the rays) about an inch in diameter. Involucre hairy. Achenes smoothish, with a thick narrow margin.

Fields, cultivated grounds, etc.; rare. Cambridge, Washington county (*Dr. Stevenson*). North-Salem, Westchester county (*Dr. Mead*). June – August.

31. ACHILLEA. *Linn.; Less. syn. p.* 250. YARROW.

[So named because its virtues are said to have been first discovered by *Achilles*, a disciple of Chiron.]

Heads many-flowered; the rays few or 10 – 20, pistillate, short. Scales of the involucre imbricated. Receptacle small, usually flat, chaffy. Achenia oblong, obcompressed, margined, without a pappus. — Perennial herbs, with alternate mostly pinnately divided leaves and small corymbose heads.

§. MILLEFOLIUM, Tourn. *Involucre ovoid-oblong: rays few and short: receptacle small: achenia slightly margined.*

1. ACHILLEA MILLEFOLIUM, *Linn.* *Common Yarrow.*

Cauline leaves nearly sessile, bipinnatifid; the lobes linear, 3 – 5-cleft, mucronate; corymb compound, fastigiate; rays 4 – 5, obovate. — *Linn. sp.* 2. *p.* 899; *Engl. bot. t.* 578; *Pursh, fl.* 2. *p.* 563; *Ell. sk.* 2. *p.* 405; *Bigel. fl. Bost. p.* 315; *Beck, bot. p.* 212; *Hook. fl. Bor.-Am.* 2. *p.* 489; *Darlingt. fl. Cest. p.* 489; *DC. prodr.* 6. *p.* 24; *Torr. & Gr. fl. N. Am.* 2. *p.* 409.

Stem erect, sulcate, hairy, commonly simple, 1½ – 3 feet high. Leaves 2 – 4 inches long, cut into very numerous narrow segments, more or less hairy; the radical ones petioled. Heads crowded. Scales of the involucre lanceolate-oblong, with the midrib very prominent. Rays usually white, but sometimes pale rose-color.

Dry pastures, fields and road-sides; very common. July – October. Introduced from Europe. This plant has long been employed medicinally as a tonic and astringent. It is also made into an ointment, and used for dressing wounds.

Div. 2. CHRYSANTHEMEÆ, *DC.* *Receptacle naked. Heads radiate; the rays ligulate, pistillate, rarely neutral, in a single series (rarely wanting); the disk-flowers perfect.*

32. LEUCANTHEMUM. *Tourn.; DC. prodr.* 6. *p.* 45. OX-EYE DAISY.

[From the Greek, *leukos*, white, and *anthemon*, a flower; the color of the blossoms.]

Heads many-flowered; the rays pistillate, numerous: disk-flowers perfect, with a fleshy obcompressed somewhat 2-winged tube. Involucre broad; the scales imbricated, scarious on the margin. Receptacle flat or convex, naked. Achenia of the disk and ray similar, somewhat terete, striate, without a pappus; or those of the ray sometimes crowned with a short pappus. — Perennial herbs, with alternate mostly toothed or pinnatifid leaves, and large solitary head terminating the stem or branches. Rays white or rarely rose-color: disk yellow.

1. LEUCANTHEMUM VULGARE, *Lam.* *White-weed. Daisy.*

Stem erect, simple, somewhat branched; leaves laciniately incised or pinnatifid-toothed; the cauline ones sessile and somewhat clasping; the radical obovate-spatulate, petioled; scales of the involucre with narrow scarious rusty-brown margins. — *DC. prodr.* 6. *p.* 46; *Torr. & Gr. fl. N. Am.* 2. *p.* 412. Chrysanthemum Leucanthemum, *Linn. sp.* 2. *p.* 889; *Engl. bot. t.* 601; *Pursh, fl.* 2. *p.* 526; *Ell. sk.* 2. *p.* 400; *Bigel. fl. Bost. p.* 301; *Beck, bot. p.* 212; *Darlingt. fl. Cest. p.* 490.

Stem 1 – 2 feet high, erect or assurgent, smoothish. Leaves 1 – 2 inches long, smooth, mostly pinnatifid-toothed towards the base; the radical ones often orbicular-spatulate. Heads 1½ – 2 inches diameter. Rays 20 – 30, elliptical-oblong. Disk-flowers very numerous. Achenia of the ray, as well as of the disk, without a pappus, dark purple.

Fields, meadows and road-sides; every where naturalized. June – August. Introduced from Europe. A very pestilent weed.

Div. 3. COTULEÆ and ARTEMISIEÆ, *DC. Receptacle naked (not chaffy). Heads discoid, homogamous or heterogamous; the flowers all tubular; those of the disk perfect, but sometimes infertile.*

33. TANACETUM. *Linn.; DC. prodr.* 6. *p.* 127. TANSEY.

[A name altered from *Athanasia; a*, not, and *thanatos*, death; because its flowers are lasting.]

Heads discoid, homogamous, with the flowers all tubular and perfect, or heterogamous; the marginal flowers pistillate, in a single series, 3 – 4-toothed. Scales of the involucre imbricated, dry. Receptacle convex, naked. Achenia angled or ribbed, smooth, with a large epigynous disk. Pappus either none or minute, membranaceous, coroniform, entire or toothed, often unequal. — Herbs or suffruticose plants, with alternate variously dissected leaves and solitary or corymbose heads. Flowers yellow.

1. TANACETUM VULGARE, *Linn.* *Common Tansey.*

Stem herbaceous, erect, smooth; leaves nearly smooth, bipinnately parted; the rachis and lobes incisely serrate; corymb of numerous heads; inner scales of the involucre scarious at the apex, obtuse; pappus short, equal, 5-lobed (*DC.*). — *Engl. bot. t.* 1229; *Pursh, fl.* 2. *p.* 522; *Torr. compend. p.* 287; *Beck, bot. p.* 211; *Darlingt. fl. Cest. p.* 492; *DC. prodr.* 6. *p.* 128; *Torr. & Gr. fl. N. Am.* 2. *p.* 414.

Perennial. Stem 2 – 4 feet high, ribbed. Leaves smoothish, dotted. Heads of flowers depressed, in dense fastigiate corymbs. Corolla sprinkled with resinous dots. Pappus coroniform.

Old fields, road-sides and cultivated grounds: naturalized in many places. Introduced from Europe. July – October. A well known domestic medicine.

34. ARTEMISIA. *Linn.; DC. prodr. 6. p. 93.* WORMWOOD.

[Named from *Artemis*, the Diana of the Greeks.]

Heads discoid, few- or many-flowered, heterogamous; the central flowers perfect (either fertile, or sterile by the abortion of the ovary) and 5-toothed; the marginal pistillate in a single series, with a tubular 3-toothed corolla; or sometimes homogamous, with all the flowers perfect. Scales of the involucre imbricated, mostly dry, and with scarious margins. Receptacle flattish or convex, naked or villous. Achenia obovoid, with a small epigynous disk, without a pappus.—Herbs, or shrubby (bitter and mostly aromatic) plants, with alternate usually pinnately divided leaves. Heads in spikes or racemes, which are mostly paniculate. Corolla yellow or purplish.

§ 1. DRACUNCULUS, Bess. *Receptacle naked: heads heterogamous; the disk-flowers sterile.*

1. ARTEMISIA CANADENSIS, *Michx.* *Wild Wormwood.*

Biennial?, smooth or canescent; radical and lower cauline leaves bipinnately divided, petioled, the upper 3 – 7-divided, sessile; the segments linear or linear-lanceolate; heads (rather large) hemispherical or subglobose, in paniculate racemes; scales of the involucre ovate or oval, with scarious margins. — *Michx. fl. 2. p. 129; Nutt. gen. 2. p. 144; Torr. compend. p. 287; Beck, bot. p. 211; DC. prodr. 6. p. 99; Torr. & Gr. fl. N. Am. 2. p. 417.* A. peucedanifolia, *Juss. ex Bess.; DC. l. c.*

Stem about 2 feet high, sometimes decumbent at the base. Radical leaves clustered, silky underneath. Racemes rather loose. Heads larger than in the preceding species.

Sandy shores of Lake Erie and Lake Ontario (*Dr. Knieskern* and *Dr. L. C. Beck*). July – August. Nearly allied to the following.

2. ARTEMISIA CAUDATA, *Michx.* *Tall Biennial Wormwood.*

Biennial, smoothish; stem erect, paniculate; upper cauline leaves pinnately, the lower and radical 2 – 3-pinnately divided; the segments linear-setaceous, divaricate; racemes disposed in a strict elongated panicle; heads ovate-globose; exterior scales of the involucre ovate, the inner elliptical, scarious. — *Michx. fl. 2. p. 129; Nutt. gen. 2. p. 114; Ell. sk. 2. p. 318; Torr. compend. p. 287; Beck, bot. p. 211; DC. prodr. 6. p. 97; Torr. & Gr. fl. N. Am. 2. p. 417.* A. Canadensis, *Bigel. fl. Bost. p. 299.*

Stem 2 – 4 feet high, rather slender. Primordial leaves forming a tuft, pinnately compound, with very narrow segments which are smooth above and slightly pubescent underneath; the petioles 3 – 6 inches long: lower cauline leaves sessile, mostly bipinnately divided. Racemes very numerous, forming a dense pyramidal panicle. Heads mostly erect, about two lines long; the scales of the involucre shining, of a grayish color, with a dull purple midrib: pedicels shorter than the heads.

Sandy seacoast of Long Island. August – September.

§ 2. ABROTANUM, Tourn. *Receptacle naked (not hairy): heads heterogamous; the flowers all fertile.*

3. ARTEMISIA VULGARIS, *Linn.* *Mugwort.*

Perennial, erect; leaves whitish-tomentose underneath; the cauline pinnatifid, with the lobes either laciniate, incised, coarsely serrate, or entire; the uppermost nearly linear and entire; heads spicate-paniculate, ovoid, nodding, at length erect; the panicle leafy and spreading; exterior scales of the involucre canescently tomentose, the inner scarious; corolla smooth (*Bess. in Hook. fl. Bor.-Am.* 1. *p.* 322). — *Linn. sp.* 2. *p.* 848; *Engl. bot. t.* 978; *Michx. fl.* 2. *p.* 128; *Pursh, fl.* 2. *p.* 522; *Nutt. gen.* 2. *p.* 144; *DC. prodr.* 6. *p.* 112; *Torr. & Gr. fl. N. Am.* 2. *p.* 421. A. heterophylla, *Nutt. in trans. Amer. phil. soc.* (n. s.) 7. *p.* 400.

var. *vulgatissima:* lobes of the leaves linear-lanceolate, the lower scarcely incisely toothed; panicle ample, erect. *Bess. l. c.; Torr. & Gr. l. c.*

Stem 2 – 3 feet high, suffruticose, much branched, furrowed. Leaves 2 – 4 inches long and 1 – 2 inches broad; the lobes coarsely incised and acute, green above, clothed with dense white wool underneath. Heads sessile. Scales of the involucre woolly.

Old fields, road sides and waste places; northern and western parts of the State; naturalized in many places. September – October. This plant, though bitter, is eaten by cattle and sheep, and is said to be used in Sweden as a substitute for hops in the preparation of beer.

Subtribe V. GNAPHALIEÆ, Less. *Heads homogamous or heterogamous, discoid; the flowers all tubular; the pistillate mostly fertile. Anthers caudate at the base. Style in the perfect flowers with the branches not appendiculate; in the staminate mostly undivided. Pappus composed of capillary or setaceous bristles, or sometimes none. — Leaves mostly alternate.*

CONSPECTUS OF THE GENERA.

* *Receptacle not chaffy.*

35. GNAPHALIUM. Heads heterogamous; the central flowers perfect, the marginal filiform. Pappus all capillary.

36. ANTENNARIA. Heads dicœcious. Pappus of the sterile flowers clavate or thickened at the apex.

** *Receptacle chaffy, except in the centre.*

37. FILAGO. Heads heterogamous; the exterior flowers pistillate, filiform, subtended by the chaff of the receptacle, without a pappus; the central flowers with a pappus.

35. GNAPHALIUM. *Linn.; Endl. gen.* 2767. *CUDWEED.*

[From the Greek, *gnaphalon*, soft down or wool, with which most of the species are clothed.]

Heads many-flowered, heterogamous; the flowers all tubular; the exterior pistillate, very slender, mostly in several series; the central perfect. Scales of the involucre imbricated, appressed, scarious or somewhat hyaline. Receptacle flat, naked. Style 2-cleft. Achenia

somewhat terete, or more or less obcompressed. Pappus a single series of slender rough bristles. — Herbaceous plants, mostly woolly or tomentose, with sessile decurrent leaves, and glomerate, corymbose, or spicate heads. Scales of the involucre variously colored.

§ 1. EUGNAPHALIUM, *DC.* *Pistillate flowers in several series: achenia somewhat terete.*

1. GNAPHALIUM DECURRENS, *Ives.* *Decurrent Cudweed.*

Stem branching at the summit, clothed with a viscid pubescence; leaves linear-lanceolate, partly clasping, decurrent, acute, glandularly viscid and roughish above, the under surface (like the branches) whitish tomentose; heads nearly sessile, in dense corymbose-capitate clusters at the summit of leafy branches; scales of the involucre yellowish-white, oval, scarious, rather acute.—*Ives in Sill. jour.* 1. *p.* 380. *t.* 1; *Torr. compend. p.* 288; *Beck, bot. p.* 178; *Hook. fl. Bor.-Am.* 1. *p.* 328; *DC. prodr.* 6. *p.* 226; *Torr. & Gr. fl. N. Am.* 2. *p.* 426.

Perennial. Stem about 2 feet high, stout, somewhat fastigiately branched above. Leaves 3 – 4 inches long and 3 – 5 lines wide, the margins slightly waved and revolute, pale green above. Heads about 3 lines long, collected in large round clusters. Scales of the involucre very woolly at the base.

Fields and hill-sides; common in the northern and western counties, and in many situations seeming to occupy the place of the next species. August – September.

2. GNAPHALIUM POLYCEPHALUM, *Michx.* *Life Everlasting. Balsam.*

Stem erect, paniculate above, woolly; leaves linear-oblanceolate, tapering at the base, undulate on the margin, acute, slightly rough above, whitish and woolly underneath; heads ovoid, clustered in a terminal paniculate corymb; scales of the involucre scarious, ovate and oblong, rather obtuse. — *Michx. fl.* 2. *p.* 127; *Pursh, fl.* 2. *p.* 584; *Ell. sk.* 2. *p.* 325; *Bigel. fl. Bost. p.* 300; *Beck, bot. p.* 178; *Hook. fl. Bor.-Am.* 1. *p.* 328; *Darlingt. fl. Cest. p.* 494; *DC. prodr.* 6. *p.* 227; *Torr. & Gr. fl. N. Am.* 2. *p.* 427. G. obtusifolium, *Linn. sp. ed.* 2. *p.* 1198; *Willd. sp.* 3. *p.* 1880.

Annual. Stem 1 – 2 feet high, whitish-tomentose, often much branched towards the summit. Leaves sessile, 1 – 2 inches long and 2 – 4 lines wide, light green above. Heads sessile, nearly 3 lines long, yellowish-white, pretty densely aggregated in roundish clusters at the extremity of the branches. Scales of the involucre mostly rather obtuse, smooth. Flowers yellowish; the perfect few.

Old fields, dry open woods, and borders of salt marshes; common, except in the northern and western counties. August – September. The whole plant has a strong balsamic and rather agreeable odor. An infusion of it is a popular remedy in dysentery.

3. GNAPHALIUM ULIGINOSUM, *Linn.* *Marsh Cudweed.*

Stem diffusely branched, woolly; leaves lanceolate-linear, tapering at the base, woolly on both sides; heads in dense terminal capitate and sessile clusters, leafy at the base; scales of the involucre oblong-lanceolate, rather acute, scarious. — *Linn. sp.* 2. *p.* 856; *Engl. bot. t.* 1194; *Michx. fl.* 2. *p.* 197; *Pursh, fl.* 2. *p.* 584; *Hook. fl. Bor.-Am.* 1. *p.* 329; *Bigel. fl. Bost. p.* 301; *Beck, bot. p.* 178; *Darlingt. fl. Cest. p.* 493; *DC. prodr.* 6. *p.* 230; *Torr. & Gr. fl. N. Am.* 2. *p.* 427.

Annual. Stem 3 – 8 inches high, often very much branched from the base. Leaves about an inch long; those near the summit of the branches crowded about the heads, and very woolly. Heads few in a cluster. Scales of the involucre yellowish-tawny. Achenia smooth.

Low grounds, ditches, etc.; very common. July – September. A homely little weed.

4. GNAPHALIUM PURPUREUM, *Linn.* *Purple Cudweed.*

Stem erect, simple, tomentose; leaves oblong-spatulate, tapering at the base, mostly obtuse, densely tomentose and whitish underneath; heads of flowers clustered in the axils of the upper leaves, and spiked at the summit; scales of the involucre lanceolate-oblong, the inner ones purplish. — *Linn. sp.* 2. *p.* 854; *Michx. fl.* 2. *p.* 127; *Ell. sk.* 2. *p.* 325; *Pursh, fl.* 2. *p.* 525; *Beck, bot. p.* 179; *Darlingt. fl. Cest. p.* 492; *DC. prodr.* 6. *p.* 232; *Torr. & Gr. fl. N. Am.* 2. *p.* 428. G. spathulatum, *Lam. dict.* 2. *p.* 758. G. Americanum, *Willd. sp.* 3. *p.* 1887; *Pursh, l. c.;* not of *Mill.* G. Pennsylvanicum, *Willd. enum.; DC. l. c. p.* 235.

Root annual. Stem 8 – 15 inches high, slender, clothed with a loose whitish wool. Leaves about an inch long, pale green above; the radical 3 – 4 lines wide, the cauline narrower. Heads 3 lines long, forming an interrupted spike. Outer scales of the involucre usually tawny or whitish, sometimes purplish, woolly at the base. Flowers pale purple. Achenia roughish.

Dry open woods and in sandy fields; rather common. July – September. *G. spicatum,* Lam. is probably not distinct from this species.

36. ANTENNARIA. *Gært.; R. Br. in Linn. trans.* 12. *p.* 122. *ANTENNARIA.*

Species of GNAPHALIUM, *Linn. &c.*

[Named in allusion to the bristles of the pappus, which resemble the *antennæ* of some insects.]

Heads many-flowered, diœcious; the corolla tubular, 5-toothed, in the pistillate flowers filiform. Scales of the involucre imbricated, scarious, colored. Receptacle convex, alveolate. Style in the fertile flowers 2-cleft; in the staminate simple or nearly so. Achenium nearly terete. Pappus in a single series; in the pistillate capillary, in the staminate clavate. — Perennial tomentose-canescent herbs, with alternate entire leaves and corymbose heads. Involucre mostly white, sometimes rose-color or brownish, but never yellow.

1. ANTENNARIA MARGARITACEA, *R. Br.* *Pearly Everlasting.*

Stem erect, corymbose at the summit; leaves linear-lanceolate, tapering to an acute point, revolute on the margin, loosely woolly above, densely tomentose underneath; scales of the involucre white.—*R. Br. l. c.; Hook. fl. Bor.-Am.* 1. *p.* 329; *DC. prodr.* 6. *p.* 270; *Torr. & Gr. fl. N. Am.* 2. *p.* 429. Gnaphalium margaritaceum, *Linn. sp.* 2. *p.* 850; *Michx. fl.* 2. *p.* 127; *Engl. bot. t.* 2018; *Pursh, fl.* 2. *p.* 524; *Bigel. fl. Bost. p.* 299; *Beck, bot. p.* 179; *Darlingt. fl. Cest. p.* 494.

Stem 1 – 2 feet high, white and woolly, not stoloniferous at the base. Leaves numerous, 3 – 4 inches long and 2 – 3 lines wide, tapering at each end, green above, and clothed with a loose down like cobweb. Heads numerous, about one-third of an inch in diameter, pedicellate, disposed in a spreading fastigiate corymb. Scales of the involucre of a pearly white color, ovate, obtuse, finely striate.

Dry fields and borders of woods; common. August – September. The dry pearly heads are ornamental and very lasting.

2. ANTENNARIA PLANTAGINIFOLIA, *R. Br.* *Plantain-leaved Cudweed.*

Stem simple, with procumbent sterile shoots from the base; radial leaves obovate-spatulate, 3-nerved; the cauline lanceolate, appressed; heads in a small crowded corymb; scales of the involucre with the tips usually eroded or crenulate, of the sterile plant broad and obtuse, of the fertile narrow and mostly acute.—*R. Br. l. c.; Hook. fl. Bor.-Am.* 1. *p.* 329; *Torr. & Gr. fl. N. Am.* 2. *p.* 431. A. plantaginea, *DC. prodr.* 6. *p.* 270. Gnaphalium plantaginifolium, *Linn. sp.* 2. *p.* 850; *Pers. syn.* 2. *p.* 420. G. plantagineum, *Murr.*; *Pursh, fl.* 2. *p.* 525; *Ell. sk.* 2. *p.* 327; *Bigel. fl. Bost. p.* 300; *Beck, bot. p.* 179. G. dioicum, *var.* plantaginifolium, *Michx. fl.* 2. *p.* 128. G. dioicum, and *var.* plantaginifolium, *Darlingt. fl. Cest. p.* 494.

Root creeping. Stem 3 – 10 inches high, throwing off from its base procumbent and partly assurgent shoots 2 – 6 inches long. Leaves silky-villous underneath, loosely woolly or at length nearly smooth above; the radical ones (particularly those that have remained through the winter) often very large and broad. Heads few (6 – 10), pedicellate. Scales of the involucre usually white, but sometimes pale purple. Pappus of the sterile flowers conspicuously denticulate.

Woods and dry hill-sides; common. April – May.

37. FILAGO. *Tourn.; DC. prodr. 6. p. 247.* *COTTON ROSE.*

[From the Latin, *filum*, a thread; the plant being covered with fine cobweb-like threads.]

Heads many-flowered, heterogamous; the central flowers tubular, 4 – 5-toothed, perfect, but often infertile; the others pistillate, filiform. Scales of the involucre few, the exterior mostly woolly. Receptacle elongated or turbinate, chaffy at the base, naked at the summit. Pappus of the central flowers capillary; of the exterior caducous or none. Achenia nearly terete.—Annual woolly herbs, usually branched. Leaves alternate, entire. Heads glomerate or fascicled.

1. FILAGO GERMANICA, *Linn.* *Herba Impia.*

Stems dichotomous; the branches arising from the base of the capitate glomerules; leaves lanceolate, acute; heads pyramidal; involucral scales cuspidate; the exterior pistillate flowers in several series, destitute of pappus. — *Linn. sp. ed. 2. p. 1311; DC. prodr. 6. p. 247; Torr. & Gr. fl. N. Am. 2. p. 432.* Gnaphalium Germanicum, *Linn. sp.* (ed. 1.) 2. *p.* 857; *Engl. bot. t.* 2369; *Pursh, fl. 2. p. 526; Torr. compend. p. 289; Beck, bot. p. 178; Darlingt. fl. Cest. p.* 493.

Stem 3 – 8 inches high, at first simple and bearing a terminal cluster of heads, but at length more or less branched, clothed (like the leaves) with a woolly tomentum. Leaves about three-fourths of an inch long, numerous, erect. Heads crowded in small roundish or ovoid clusters. Scales of the involucre straw-colored or tawny. Receptacle small, turbinate, tuberculate. Achenia minutely papillose.

Dry fields and sterile hill-sides. Staten Island. August – September. Introduced from Europe.

Subtribe VI. SENECIONEÆ, Cass. *Heads homogamous or heterogamous, never diœcious, discoid or radiate; the rays ligulate, in a single series. Receptacle scarcely ever chaffy. Anthers not caudate. Pappus capillary, rarely wanting in the exterior flowers.*

CONSPECTUS OF THE GENERA.

* *Heads discoid, heterogamous; the flowers all tubular.*

38. ERECHTITES. Marginal flowers pistillate, very slender, 2 – 3-toothed.

** *Heads homogamous, or heterogamous and radiate.*

39. CACALIA. Heads discoid, 5 – many-flowered. Achenia smooth. Pappus rough. Flowers white or whitish.—Leaves alternate.

40. SENECIO. Heads radiate or discoid, many-flowered. Pappus of very slender bristles. Receptacle flat or convex. Flowers mostly yellow.—Leaves alternate.

41. ARNICA. Heads radiate, many-flowered. Pappus barbellate or strongly denticulate, rather rigid. Receptacle flat.—Leaves opposite.

38. ERECHTITES. *Raf.; DC. prodr.* 6. *p.* 294. *FIREWEED.*

[An ancient name of a species of SENECIO, from which the genus ERECHTITES was separated.]

Heads many-flowered, discoid; the flowers all tubular; the marginal pistillate, with a somewhat 2 – 3-toothed corolla; the others perfect, with the corolla 4 – 5-toothed. Involucre cylindrical; the scales in a single series, linear, acute. Receptacle naked, somewhat papillose. Branches of the style tipped with an upwardly pubescent cone. Achenia oblong, striate, somewhat contracted at the apex. Pappus copious, of very fine capillary bristles.— Erect annual herbs, with alternate simple leaves and corymbose heads. Flowers whitish or yellowish.

1. ERECHTITES HIERACIFOLIUS, *Raf.* *Common Fireweed.*

Stem simple or paniculate above, sulcate; leaves lanceolate-oblong, acute, coarsely and unequally serrate with sharp salient teeth, tapering to the base, the upper ones often auriculate-sagittate and partly clasping; involucre smooth, with small linear bracteoles at the base.— *DC. prodr.* 6. *p.* 294; *Torr. & Gr. fl. N. Am.* 2. *p.* 434. E. hieracifolia, prælta *and* elongata, *Raf.* Senecio hieracifolius, *Linn. sp.* 2. *p.* 866; *Michx. fl.* 2. *p.* 119; *Pursh, fl.* 2. *p.* 529; *Ell. sk.* 2. *p.* 328; *Bigel. fl. Bost. p.* 307; *Beck, bot. p.* 201; *Darlingt. fl. Cest. p.* 498; *Hook. fl. Bor.-Am.* 1. *p.* 332.

Stem 1 – 4 feet high, thick and succulent, paniculately corymbose at the summit, usually more or less hairy, but sometimes smooth. Leaves 3 – 6 inches long and 1 – 2 inches or more wide, somewhat hairy underneath, particularly on the midrib. Heads about three-fourths of an inch long, on slender peduncles, a little swelling at the base. Scales of the involucre about the length of the disk, striate, green with narrow scarious margins. Pappus very copious, white and silky.

Moist grounds, road sides, and particularly in places that have been recently burnt over; very common. July – September. The whole plant has a rank nauseous odor. It is said that an essential oil is extracted from it, which is used as a remedy for piles, and for diarrhœa.

39. CACALIA. *Linn.; DC. prodr.* 6. *p.* 327. *INDIAN PLANTAIN.*

[An ancient name applied to some species of this genus.]

Heads 5 – many-flowered; the flowers all tubular and perfect. Involucre cylindrical; the scales 5 – 30, in a single series. Receptacle flat, not chaffy, sometimes with a conical or scale-like appendage in the centre. Limb of the corolla expanded, deeply 5-cleft. Branches of the style tipped with a very short cone, or obtuse. Achenia oblong, smooth, not rostrate. Pappus of minute rough capillary bristles.— Perennial herbs, mostly very smooth, with alternate and usually petiolate leaves and corymbose heads. Flowers white or cream-colored.

1. CACALIA SUAVEOLENS, *Linn.* *Sweet-scented Indian Plantain.*

Stem striate and angled; leaves triangular-lanceolate, hastate, acute, unequally serrate-toothed; the cauline on winged petioles, green on both sides; heads many-flowered; scales of the involucre about 12.—*Linn. sp.* 2. *p.* 835; *Michx. fl.* 2. *p.* 96; *Pursh, fl.* 2. *p.* 518; "*Schk. handb. t.* 236;" *Beck, bot. p.* 199; *DC. prodr.* 5. *p.* 327; *Torr. & Gr. fl. N. Am.* 2. *p.* 434. Senecio suaveolens, *Ell. sk.* 2. *p.* 328.

Perennial? Stem 3 – 4 feet high, smooth. Leaves 3 – 5 inches long and 1 – 2 inches wide, smooth, rather thin; the radical ones on long petioles, with conspicuous hastate lobes. Heads 25 – 30-flowered. Involucre with several setaceous spreading bracts at the base. Flowers yellowish-white. Receptacle flat, naked.

Fertile damp soils, along streams, etc. Avon, Livingston county (*Dr. B. D. Greene*). August – October. This species has the habit of *Erechtites hieracifolius*. When dry, it exhales the odor of *Medicago cærulea*.

2. CACALIA ATRIPLICIFOLIA, *Linn.* (Plate LIX.) *Indian Plantain.*

Stem terete, glaucous; leaves all petioled, whitish and glaucous underneath, palmately veined, angularly lobed or toothed; radical and lower cauline deltoid-cordate; the upper rhomboid, cuneate at the base; involucre 5-leaved, 5-flowered.—*Linn. sp.* 2. *p.* 835; *Michx. fl.* 2. *p.* 96; *Pursh, fl.* 2. *p.* 518; "*Schk. handb. t.* 236;" *Nutt. gen.* 2. *p.* 137; *Ell. sk.* 2. *p.* 310; *Beck, bot. p.* 199; *Darlingt. fl. Cest. p.* 499; *DC. prodr.* 6. *p.* 329; *Torr. & Gr. fl. N. Am.* 2. *p.* 435. Senecio atriplicifolius, *Hook. fl. Bor.-Am.* 2. *p.* 332.

Stem erect, 3 – 6 feet high, mostly simple. Lower leaves 2 – 4 inches long and of about the same breadth, strongly nerved, rather thick, more or less distinctly cordate; the petioles 2 – 5 inches long. Heads numerous, in a compound terminal corymb. Involucre ventricose, with several minute bracteoles at the base; the scales lanceolate-oblong, rather obtuse. Flowers greenish-white. Achenia oblong, ribbed, crowned with a whitish ring, on which the copious pappus is inserted. Receptacle commonly with a central somewhat chaffy column, consisting probably of united palcæ; this, however, is sometimes almost wanting.

Moist soils, on the borders of woods. Near Geneseo (*Rev. Mr. Bennett*). Near Rochester? July – September. The leaves are sometimes used as an application to wounds.

40. SENECIO. *Linn.; DC. prodr.* 6. *p.* 340. *GROUNDSEL.*

[So named from the Latin, *senex*, an old man. See ERIGERON.]

Heads many-flowered, usually radiate with pistillate rays; sometimes discoid, with all the flowers tubular and perfect. Scales of the cylindrical involucre in a single series, often calyculate. Receptacle naked or alveolate. Achenia neither rostrate nor winged. Pappus

of numerous slender capillary bristles.—Mostly herbs, of various habit. Leaves alternate. Heads corymbose or paniculate. Flowers yellow.

Of this difficult genus, six hundred species are described by De Candolle.

1. SENECIO VULGARIS, *Linn.* *Common Groundsel.*

Annual; leaves pinnatifid, toothed, clasping, the lower ones tapering into petioles; heads in a loose corymb, discoid, nodding; calyculate scales much shorter than the involucre.—*Linn. sp.* 2. *p.* 867; *Engl. bot. t.* 747; *Pursh, fl.* 2. *p.* 528; *Bigel. fl. Bost. p.* 307; *Torr. compend. p.* 305; *Beck, bot. p.* 201; *Hook. fl. Bor.-Am.* 1. *p.* 331; *DC. prodr.* 6. *p.* 341; *Torr. & Gr. fl. N. Am.* 2. *p.* 437.

Plant about a foot high, more or less branching, smooth or a little woolly. Leaves 2 – 3 inches long, deeply pinnatifid with oblong toothed or serrated lobes. Heads about one-third of an inch long. Calyculate scales of the involucre about 10, blackish at the tip. Flowers yellow. Achenia minutely pubescent. Pappus copious.

Waste places, road-sides, etc. Long Island. Introduced from Europe. June – October.

2. SENECIO AUREUS, *Linn.* *Life-root. Squaw-weed.*

Smooth, or somewhat woolly when young; radical leaves orbicular or roundish-ovate, mostly cordate, crenate-serrate, petioled; the cauline lyrate-pinnatifid, sessile or partly clasping; corymb somewhat umbellate; rays 8 – 12.—*Linn. sp.* 2. *p.* 870; *Michx. fl.* 2. *p.* 120; *Pursh, fl.* 2. *p.* 530; *Ell. sk.* 2. *p.* 331; *Bigel. fl. Bost. p.* 307; *Hook. fl. Bor-Am.* 1. *p.* 333; *Beck, bot. p.* 200; *Darlingt. fl. Cest. p.* 496; *DC. prodr.* 6. *p.* 432; *Torr. & Gr. fl. N. Am.* 2. *p.* 442.

var. *obovatus*: radical leaves varying from roundish-obovate to oblong-spatulate. *Torr. & Gr. l. c.* S. obovatus, *Muhl. in Willd. sp.* 3. *p.* 1999; *Pursh, l. c.; Ell. l. c.; Beck, l. c.; Darlingt. l. c.; DC. l. c.*

var. *Balsamitæ*: radical leaves oval, oblong, or spatulate and lanceolate, crenate or toothed, sometimes lyrate-incised. *Torr. & Gr. l. c.* S. Balsamitæ, *Muhl. in Willd. sp. l. c.; Pursh. l. c.; Beck, l. c.; Darlingt. l. c.; DC. l. c.*

Perennial. Stem 1 – 2 feet high, branched above, often clothed with a loose cotton-like tomentum, especially when young, and about the insertion of the leaves. Radical leaves 1 – 3 inches long and 1 – 2½ inches wide, entire, with the petioles 2 – 6 inches in length; in the two varieties, smaller and much narrower. Heads nearly half an inch long, numerous, on long slender peduncles. Involucre ovate-cylindrical, scarcely calyculate, woolly at the base: scales lanceolate, often purplish. Rays and disk bright yellow. Achenia smooth, or minutely hairy on the angles.

Moist meadows, banks of rivulets, etc.; the variety *obovatus* in rather dry places; and var. *Balsamitæ*, in fields and meadows. April – June. A most variable species, but the forms here described, although very dissimilar in their extreme states, most certainly pass into each other.

41. ARNICA. *Linn.; Endl. gen.* 2800. *ARNIC*

[Said to be a corruption of *Ptarmica.*]

Heads many-flowered, radiate; the ray-flowers pistillate, but often with sterile stamens; disk-flowers tubular, perfect, 5-toothed. Involucre campanulate; the scales lanceolate, equal, somewhat in a double series. Receptacle flat, fibrillate or a little hairy. Style in the disk-flowers with long pubescent branches, truncate, or tipped with a short cone. Achenia terete, tapering to the base or fusiform, somewhat hairy. Pappus a single series of rather rigid scabrous or plumose-barbellate bristles. — Perennial herbs, with undivided opposite leaves, and rather large solitary or loosely corymbose heads. Flowers yellow.

1. ARNICA MOLLIS, *Hook.* (Plate LX.) *Soft Arnica.*

Villous-pubescent; steam leafy, bearing 1 – 5 heads; leaves lanceolate or oblong, smoothish when old, repandly denticulate; the cauline 3 – 5 pairs; the upper closely sessile, the lower narrowed at the base or tapering into a petiole; scales of the involucre acuminate, hairy; achenia almost plumose.—*Hook. fl. Bor.-Am.* 1. *p.* 331; *Torr. & Gr. fl. N. Am.* 2. *p.* 450.

Root creeping. Stem 12 – 20 inches high, simple, more or less pubescent, especially above. Leaves 3 – 5 inches long and about an inch wide, thin, veiny; the lower on rather long winged petioles, and somewhat triplinerved; upper ones somewhat connate, acuminate. Heads commonly 3, nearly two inches in diameter. Rays about 12, 2 – 3-toothed at the extremity, pale yellow.

Borders of rivulets in the mountains of Essex county. August.

TRIBE V. *CYNAREÆ. Less.*

Heads homogamous or heterogamous, sometimes diœcious. Style in the perfect flowers often abruptly thickened near the summit; the branches either distinct or united, pubescent externally; the stigmatic lines reaching to their apex, and there confluent.

CONSPECTUS OF THE GENERA.

Subtribe I. CENTAURIEÆ. Heads discoid; the marginal flowers mostly neutral, usually much larger than the others. Pappus never plumose, sometimes wanting.

42. CENTAUREA. Achenia compressed. Pappus of filiform bristles, or none.

43. CNICUS. Achenia terete, strongly striate. Pappus triple; the exterior 10-toothed, the intermediate of 10 long bristles, the inner of 10 short bristles. Marginal flowers sterile, small.

Subtribe II. CARDUINEÆ. Heads discoid, homogamous, sometimes diœcious. Anthers slightly or not at all caudate. Pappus of plumose or rough bristles.

44. CIRSIUM. Achenia smooth. Pappus plumose. Receptacle bristly.

45. LAPPA. Achenia rugose. Pappus rough, caducous. Receptacle setose-fimbrillate. Scales of the involucre hooked at the apex.

Subtribe I. CENTAURIEÆ, *DC.* *Heads discoid, many-flowered; the marginal flowers usually neutral, with the corolla irregularly 5-cleft, and much larger than the disk-flowers. Scales of the involucre imbricated, variously appendiculate. Pappus hairy, setose or chaffy, never plumose, sometimes wanting.*

42. CENTAUREA. *Linn.; Endl. gen.* 2871. *STAR-THISTLE.*

[So named, because, with a plant of this genus, the *Centaur Chiron* is said to have cured himself of a wound received from Hercules.]

Heads many-flowered; the ray-flowers mostly large and sterile, sometimes wanting. Scales of the involucre imbricated, various. Receptacle setose. Achenia compressed. Pappus composed of rough bristles, sometimes nearly or quite wanting. — Herbs of varied aspect, with alternate leaves and solitary heads.

1. CENTAUREA CYANUS, *Linn.* *Bluebottle. French Pink.*

Plant clothed with a loose cottony down; stem erect, branching; upper leaves linear, entire, the lower ones toothed at the base; scales of the roundish-ovoid involucre surrounded with a scarious serrate margin. — *Willd. sp.* 3. *p.* 2291; *Engl. bot. t.* 277; *Darlingt. fl. Cest. p.* 435; *DC. prodr.* 6. *p.* 578; *Torr. & Gr. fl. N. Am.* 2. *p.* 454.

Annual. Stem 1 – 2 feet high, much branched. Leaves 2 – 4 inches long, hoary and villous, particularly underneath; the lower ones deeply toothed or pinnatifid at the base. Heads on terminal peduncles. Involucre closely imbricated; the exterior scales ovate; the inner ones narrower. Flowers of the ray large and funnel-form, blue, or sometimes pale; those of the disk regular, usually purplish, with dark-colored anthers. Achenia with a pit or areole on one side of the base. Pappus double, reddish, often unequal.

Cultivated grounds, rubbish, etc. Introduced in a few localities, but hardly naturalized. July – August.

43. CNICUS. *Vaill.; DC. prodr.* 6. *p.* 606. *BLESSED THISTLE.*

[From the Greek, *knizo*, to prick or wound.]

Heads many-flowered; the rays sterile, slender, nearly equal to the disk. Scales of the involucre coriaceous, appressed, produced into a long rigid pinnated spinose appendage. Receptacle bristly. Achenia terete, smooth, strongly striate. Pappus triple; the exterior of 10 short teeth; the intermediate of 10 elongated rigid bristles; the inner of 10 short bristles.—An annual herb, sparsely clothed with a loose wool. Leaves clasping, somewhat decurrent and pinnatifid. Heads terminal, bracteate. Flowers yellow.

1. CARDUUS BENEDICTUS. *Common Blessed Thistle.*

Linn. sp. ed. 1. *p.* 826; *Muhl. cat. p.* 82; *DC. prodr.* 6. *p.* 606; *Torr. & Gr. fl. N. Am.* 2. *p.* 455. Centaurea benedicta, *Linn. sp. ed.* 2. *p.* 1296.

Plant 1 – 2 feet high, branching. Leaves with spiny lobes. Heads about as large as in the Common Thistle (*Cirsium lanceolatum*). Involucre bracteate; the scales pinnately spiny.

Road-sides; rare. June. An introduced plant, but the native country uncertain.

Subtribe II. CARDUINEÆ, Less. *Heads discoid, homogamous, many-flowered; the flowers all similar, perfect or dicœcious. Scales of the involucre imbricated in several series, often spinose at the apex. Corolla usually curved outwards; the exterior often more deeply cleft than the others. Anthers slightly or not at all caudate. Achenia smooth. Pappus composed of slender rough or plumose bristles, which are often united into a ring at the base.*

44. CIRSIUM. *Tourn.; DC. prodr.* 6. *p.* 634. *THISTLE.*

[From the Greek, *kirkos*, a swelled vein; because it was supposed to heal that disease.]

Heads many-flowered; the flowers perfect and similar, rarely somewhat dicœcious. Scales of the involucre imbricated, mostly with a prickle at the tip. Receptacle bristly. Corolla 5-cleft. Anthers more or less produced and lacerate at the base. Branches of the style united nearly to the apex. Achenia oblong, compressed, not ribbed. Pappus of numerous plumose bristles.— Herbs with sessile or decurrent leaves, which are often pinnatifid; the margin and teeth usually spiny. Heads globose or ovoid. Corolla purple, or sometimes cream-colored.

1. CIRSIUM LANCEOLATUM, *Scop.* *Common Thistle.*

Stem branching; leaves pinnatifid, decurrent, with a spiny lobed wing, bristly above, woolly underneath; lobes and teeth tipped with spines; involucre ovoid, arachnoid; scales lanceolate, tipped with spines, the lower ones spreading.— *DC. prodr.* 6. *p.* 636; *Torr. & Gr. fl. N. Am.* 2. *p.* 456. Carduus lanceolatus, *Linn.; Engl. bot. t.* 107; *Beck, bot. p.* 436; *Darlingt. fl. Cest. p.* 437; *Hook. fl. Bor.-Am.* 1. *p.* 302. Cnicus lanceolatus, *Willd. sp.* 3. *p.* 1666; *Pursh, fl.* 2. *p.* 506; *Torr. compend. p.* 281; *Bigel. fl. Bost. p.* 292.

Root biennial. Stem 2 – 4 feet high, stout, sulcate, winged by the decurrent leaves. Leaves white underneath, armed with sharp and rigid spines. Heads about an inch and a half long. Involucre contracted above; the scales connected with a web-like tomentum. Flowers purple; the anthers yellowish.

Fields, road-sides and waste grounds; very common. July – October.— A vile weed; introduced from Europe, but being a biennial, it can be subdued without much labor.

2. CIRSIUM DISCOLOR, *Spreng.* *Two-colored Thistle.*

Stem slender, hairy, with spreading branches; leaves deeply pinnatifid, sessile, slightly hairy and green above, densely woolly and whitish underneath; the segments lanceolate, divaricate and mostly 2-lobed, tipped with a divaricate prickle; involucre ovoid-globose; the scales appressed, ovate-lanceolate, tipped with a slender spreading prickle.—*Spreng. syst.* 3. *p.* 373; *DC. prodr.* 6. *p.* 640; *Torr. & Gr. fl. N. Am.* 2. *p.* 457. Cnicus discolor, *Muhl. in Willd. sp.* 3. *p.* 1670; *Ell. sk.* 2. *p.* 271; *Bigel. fl. Bost. p.* 292. Carduus discolor, *Nutt. gen.* 2. *p.* 130; *Beck, bot. p.* 173; *Darlingt. fl. Cest. p.* 437.

Root biennial. Stem 2 – 6 feet high, with slender leafy branches, deeply striate, sparsely clothed with crisped vesicular hairs. Leaves 4 – 8 inches or more in length, with scattered hairs above like those of the stem; the under surface woolly with a soft closely pressed bluish-white tomentum. Heads about an inch and a half long; the scales gradually longer and narrower from the base upward, the innermost destitute of spiny tips. Flowers rather pale purple.

Old fields, thickets, etc.; rare in the interior of the State, but not uncommon near New-York. August – September.

3. CIRSIUM MUTICUM, *Michx.* *Awnless Swamp Thistle.*

Stem tall and rather slender, smoothish, sparingly and paniculately branched above; leaves sessile, deeply pinnatifid, arachnoid-woolly (or sometimes nearly smooth) underneath; the segments lanceolate, spreading, with few incised spiny teeth; involucre globose-ovate; the scales glutinous, connected by a white cobweb-like wool, closely appressed, unarmed, or the exterior somewhat mucronate. — *Michx. fl.* 2. *p.* 89; *DC. prodr.* 6. *p.* 652; *Torr. & Gr. fl. N. Am.* 2. *p.* 458. C. Bigelovii, *DC. l. c.* Carduus muticus, *Nutt. gen.* 2. *p.* 129; *Hook. fl. Bor.-Am.* 2. *p.* 302; *Beck, bot. p.* 172; *Darlingt. fl. Cest. p.* 438. Cnicus muticus, *Pursh, fl.* 2. *p.* 506; *Ell. sk.* 2. *p.* 268. C. glutinosus, *Bigel. fl. Bost. p.* 291.

Perennial? Stem 3 – 6 feet high, striate and angular, more or less pubescent. Leaves 4 – 8 inches long, clasping; in more exposed situations usually grayish white underneath, with rather remote and spiny segments; but in deep and shady swamps, with weaker prickles, little or no tomentum underneath, and wider and more approximate lobes. Heads densely clothed (except the upper part) with white cobweb-like hairs. Flowers purple.

Swamps and moist thickets. Southern part of the State. Rare in the western counties (*Dr. Knieskern*). August – September.

4. CIRSIUM PUMILUM, *Spreng.* *Pasture Thistle.*

Stem usually low, stout, hairy, bearing 1 – 3 very large heads; leaves lanceolate-oblong, partly clasping, green on both sides, pinnatifid; the segments irregularly incised or lobed, and very spinose; involucre ovoid-globose; the scales appressed, acuminate, tipped with a short

spine.—*DC. prodr.* 6. *p.* 651 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 459. Carduus odoratus, *Muhl. cat. p.* 70. C. pumilus, (and *var.* Histrix), *Nutt. gen.* 2. *p.* 130 ; *Beck, bot. p.* 173 ; *Darlingt. fl. Cest. p.* 437. Cnicus pumilus, *Torr. compend. p.* 282 ; *Bigel. fl. Bost. p.* 292.

Biennial. Stem usually 1 – 2 feet high, but sometimes much taller (3 – 5 feet), erect. Leaves more or less hairy, particularly on the midrib underneath, spinulose on the margin. Heads about an inch and a half in diameter, often with several pinnatifid bracts at the base. Outer scales of the involucre ovate-lanceolate ; the inner much narrower, with acuminate and sometimes dilated scarious and serrulate tips. Flowers pale reddish purple, odorous.

Dry fields and pastures ; common in the southern part of the State and on Long Island, but rare in the interior counties. July – August.

5. CIRSIUM HORRIDULUM, *Michx.* *Yellow Thistle.*

Whole plant arachnoid-woolly when young, smoother when old ; stem stout, simple or sparingly branched ; leaves lanceolate, partly clasping, pinnatifid ; the lobes toothed or incised, very spiny ; heads (large) surrounded by a whorl of spinose bracts ; involucre ovate-globose, linear-lanceolate, tapering to a very acute point, scarcely spinose.—*Michx. fl.* 2. *p.* 90 ; *DC. prodr.* 6. *p.* 651 ; *Torr. & Gr. fl. N. Am.* 2. *p.* 460. C. megacanthum, *Nutt. in trans. Amer. phil. soc.* (n. ser.) 7. *p.* 419. Cnicus horridulus, *Pursh, fl.* 2. *p.* 507 ; *Bigel. fl. Bost. p.* 291 ; *Torr. compend. p.* 281. Carduus spinosissimus, *Walt. fl. Car. p.* 194 ; *Darlingt. fl. Cest. p.* 438.

Biennial ? Stem very thick, hollow, 2 – 3 feet high. Leaves closely sessile, armed with numerous short stout yellow spines. Heads nearly as large as in the preceding species, partly concealed by the numerous pectinated involucral bracts. Flowers usually pale dull yellow, but occasionally reddish or purplish.

Sandy fields, particularly near the salt water ; rather common on Long Island. June – July.

6. CIRSIUM ARVENSE, *Scop.* (Plate LXI.) *Canada Thistle.*

Rhizoma creeping ; stem paniculately branched ; leaves oblong-lanceolate, sessile, slightly decurrent, smoothish, sinuate-pinnatifid, undulate ; heads small and numerous ; scales of the involucre ovate-lanceolate, mucronate, the outermost tipped with a short spine.—*DC. prodr.* 6. *p.* 643 ; *Torr. & Gr. fl. N. Am.* 2 *p.* 460. Serratula arvensis, *Linn.* Carduus arvensis, *Smith, Engl. bot. t.* 975 ; *Hook. fl. Bor.-Am.* 1. *p.* 301 ; *Beck, bot. p.* 172 ; *Darlingt. fl. Cest. p.* 439. Cnicus arvensis, *Pursh, fl.* 2. *p.* 506 ; *Bigel. fl. Bost. p.* 291 ; *Torr. comp. p.* 281.

Perennial. Rhizoma descending deep in the earth and then spreading, very tenacious of life. Stems 2 – 3 feet high, smooth, striate and angular ; the branches slightly woolly. Leaves 3 – 6 inches long and about an inch wide, sometimes a little woolly underneath. Heads, by abortion, dicœcious. Involucre usually globose-ovate, but sometimes oblong ; the scales appressed ; some of the outer ones tipped with a very short bristle or weak spine. Flowers pale purple, or rarely whitish.

Cultivated fields, road-sides, etc. Very common in the northern and western counties, but as yet rather rare in the southern counties. In the neighborhood of New-York, and on Long Island, it has appeared in several places, and is spreading rapidly. *Fl.* July – August.

This is one of the most troublesome weeds in the Northern States, and was undoubtedly introduced from Europe. In some parts of the State, it is known by the name of *Cursed Thistle*. Owing to the deep and widely spreading roots of this plant, and their extreme tenacity of life, it can only be eradicated with great labor. When it has taken possession of a field, many farmers practise laying down the land to grass for several years, and destroying the shoots as fast as they make their appearance. Without concert, however, it can never be got rid of; for if suffered to form seeds, these are scattered by the winds in all directions, and soon reproduce the plant where it had just been exterminated.

45. LAPPA. *Tourn.; Endl. gen.* 2892. BURDOCK.

[Said to be derived from the Celtic word *llap*, a hand; because it lays hold of every thing near it.]

Heads many-flowered; the flowers all perfect and similar. Involucre globose; the imbricated scales coriaceous, with a long rigid subulate uncinate point. Receptacle flat, bristly-paleaceous. Anthers tipped with filiform appendages, caudate at the base. Achenia oblong, compressed, rugose transversely. Pappus of numerous short filiform rough bristles, distinct at the base, caducous. — Biennial branching herbs, with large cordate and petioled leaves. Heads globose, small, solitary or somewhat corymbed. Corolla purple.

1. LAPPA MAJOR, *Gært.* *Common Burdock.*

Scales of the involucre all subulate, smooth or loosely arachnoid; upper cauline leaves ovate, the others cordate.— *Gært. fruct.* 2. *p.* 379. *t.* 162; *DC. prodr.* 6. *p.* 651; *Torr. & Gr. fl. N. Am.* 2. *p.* 463. Arctium Lappa, *Linn.; Engl. bot. t.* 1228; *Pursh, fl.* 2. *p.* 505; *Bigel. fl. Bost. p.* 290; *Beck, bot. p.* 171; *Darlingt. fl. Cest. p.* 436.

Root descending. Stem stout, 2 – 5 feet high. Radical leaves often 1 – 2 feet long, and nearly a foot wide. Heads numerous, often clustered. Scales of the involucre with a minute but very strong hook at the tip, by which the heads, when mature, stick to the clothes, and to the coats of animals.

About habitations, road-sides, and in cultivated grounds; very common. Introduced from Europe. July – October. An infusion of the root is a domestic remedy for colic and nephritic affections. The leaves are used externally for cutaneous eruptions. The ashes afford a considerable quantity of potash. In sheep-pastures, this plant is troublesome, in consequence of the burs becoming entangled in the wool of the animal.

SUBORDER II. LIGULIFLORÆ. *DC.*

Flowers all ligulate and perfect.

TRIBE VI. *CICHORACEÆ. Vaill.*

Style cylindraceous above.

CONSPECTUS OF THE GENERA.

Subtribe 1. HYOSERIDEÆ. Pappus either wholly or partly composed of chaffy or squamellate scales. Receptacle not chaffy.

* Involucre nearly simple, equal.

46. KRIGIA. Pappus of 5 broad chaffy scales and 5 alternate bristles.
47. CYNTHIA. Pappus of numerous short squamellate and capillary bristles.

** Involucre double or imbricated.

48. CICHORIUM. Pappus short, of numerous small chaffy scales.

Subtribe 2. LACTUCEÆ. Pappus capillary, not plumose. Receptacle not chaffy.

49. HIERACIUM. Pappus rough, in a single series. Heads 20 – many-flowered (yellow). Achenia oblong or columnar.

* Pappus dirty white or tawny, fragile.

50. NABALUS. Pappus rough, copious. Heads 5 – 30-flowered (not yellow), nodding. Achenia linear-oblong, terete.

** Pappus bright white (except in one *Mulgedium*).

51. TARAXACUM. Involucre double, in 2 series. Achenia striate-angled, commonly muricate, with a long filiform beak. — Stemless.
52. LACTUCA. Achenia obcompressed, flat, abruptly produced into a filiform beak. Pappus very soft and white.
53. MULGEDIUM. Achenia compressed, tapering into a short or thick beak. Pappus bright white or tawny. Flowers blue.
54. SONCHUS. Achenia compressed, not beaked. Pappus very soft and fine, bright white. Involucre becoming swollen at the base. Flowers yellow.

Subtribe 1. HYOSERIDEÆ, Less. *Receptacle not chaffy. Pappus simple or double, either wholly or partly chaffy, squamellate or coroniform.*

46. KRIGIA. *Schreb.; DC. prodr.* 7. *p.* 88. *DWARF DANDELION.*

[Named in honor of DAVID KRIEG, a German botanist.]

Heads 15 – 30-flowered. Scales of the involucre 6 – 15, somewhat in a double series, equal. Receptacle naked. Achenia turbinate, many-striate, somewhat 5-angular. Pappus double: the exterior of five broad and rounded scarious chaffy scales; the inner of as many slender bristles alternating with the scales.—Small annual herbs, branching from the base. Leaves mostly lyrate or toothed, radical. Heads small, solitary, on long slender scape-like branches. Flowers yellow.

1. KRIGIA VIRGINICA, *Willd.* *Common Dwarf Dandelion.*

Scapes at length several, sparsely and minutely pubescent; leaves somewhat glaucous; the primary ones orbicular or spatulate, mostly entire; the succeeding oblong, lyrate or sinuate-pinnatifid; bristles of the pappus much longer than the pentangular achenium; scales of the involucre nearly nerveless.—*Willd. sp.* 3. *p.* 1618; *Nutt. gen.* 2. *p.* 127; *Ell. sk.* 2. *p.* 264; *Bigel. fl. Bost. p.* 289; *Hook. fl. Bor.-Am.* 1. *p.* 301; *Darlingt. fl. Cest. p.* 440; *DC. prodr.* 7. *p.* 88; *Torr. & Gr. fl. N. Am.* 2. *p.* 468. Hyoseris Virginica, *Linn.*; *Michx. fl.* 2. *p.* 88. Cynthia Virginica, *Beck, bot. p.* 169, not of *Don.*

Scapes 1 – 10 inches high, often numerous from one root. Leaves all radical, 1 – 2 inches long; the later ones usually with several narrow spreading or curved acute lobes, narrowed into a petiole at the base. Heads about one-third of an inch in diameter. Scales of the involucre 10 – 15, lanceolate, acute, smooth, spreading in fruit. Flowers orange-yellow. Achenia oblong-turbinate, strongly sulcate, rough on the angles. Bristles three times the length of the achenium.

Dry sandy soils, road-sides, etc.; common. May – July. In its earliest state this plant throws up a single short scape from a tuft of leaves, but at length branches from the base, and often becomes more or less caulescent.

47. CYNTHIA. *D. Don in Edinb. phil. jour.* 12. *p.* 305. CYNTHIA.

["Perhaps from Mount *Cynthus*, which was sacred to Apollo and Diana." DARLINGTON.]

Heads many-flowered. Scales of the involucre 12 – 15, somewhat in a double series, equal. Receptacle flat, foveolate. Achenia short, obscurely quadrangular, many-striate, not rostrate. Pappus double; the exterior of numerous very short chaffy scales; the interior of numerous capillary rough bristles.—Perennial, mostly smooth and glaucous herbs. Leaves pinnatifid or undivided. Scapes or peduncles slender, elongated, bearing single or somewhat umbellate heads. Flowers yellow.

1. CYNTHIA VIRGINICA, *Don.* *Virginian Cynthia.*

Caulescent; leaves mostly spatulate-oblong; the radical petioled, lyrate, sinuate-dentate or pinnatifid; the cauline lanceolate, clasping, mostly entire; peduncles 2 – 5, elongated, somewhat umbelled.—*D. Don, l. c.*; *DC. prodr.* 7. *p* 89; *Torr. & Gr. fl. N. Am.* 2. *p.* 469. C. amplexicaulis, *Beck, bot. p.* 168; *Darlingt. fl. Cest. p.* 441. C. Griffithsii, *Nutt. in jour. acad. Phil.* 7. *p.* 69. Tragopogon Virginicum, *Linn. sp.* 2 *p.* 789. Hyoseris amplexicaulis, *Michx. fl.* 2. *p.* 87. H. prenanthoides, *Willd. sp.* 3. *p.* 1156. Troximon Virginicum, *Pers. syn.* 2. *p.* 360; *Pursh, fl.* 2. *p.* 505. Krigia amplexicaulis, *Nutt. gen.* 2. *p.* 127; *Ell. sk.* 2. *p.* 266.

Root not tuberiferous. Stems 12 – 18 inches high, often several from one root, nearly naked, usually once or twice forked. Radical leaves 2 – 5 inches long, variable, sometimes nearly entire. Peduncles 1 – 3 inches long, commonly about three together, with two small unequal clasping bracteal leaves at the base, sometimes a little hairy below the heads. Involucre often calyculate, with one or two subulate bracteoles at the base ; scales linear-lanceolate, nerveless, acute. Flowers orange-yellow. Achenia smooth, finely striate. Pappus very rough, brittle.

Open woods, meadows, etc. ; not rare, except in the interior of the State. May – July.

48. CICHORIUM. *Tourn. ; DC. prodr. 7. p. 84.* *SUCCORY.*

[Supposed to be derived from *chikoûryek*, the Arabic name of the plant.]

Heads many-flowered. Involucre double ; the exterior of about five short spreading scales ; the inner of 8 – 10 scales. Achenia somewhat compressed, striate, smooth. Pappus of numerous very small chaffy scales. — Branching herbs, with toothed or runcinate radical leaves. Heads axillary and nearly sessile, or terminal. Flowers bright blue, sometimes varying to white.

1. CICHORIUM INTYBUS, *Linn.* *Wild Succory*, or *Chicory.*

Radical leaves runcinate ; the cauline, small, partly clasping ; heads sessile, mostly 2 – 3 together. — *Engl. bot. t. 539 ; Pursh, fl. 2. p. 496 ; Bigel. fl. Bost. p. 285 ; Darlingt. fl. Cest. p. 440 ; Torr. & Gr. fl N. Am. 2. p. 472.*

Root perennial, somewhat fusiform. Stem 2 – 3 feet high, with numerous long branches, rough and hairy. Radical leaves 4 – 8 inches long, resembling those of the Dandelion ; stem-leaves smaller, cordate, more or less sinuate-toothed. Heads mostly by pairs, sessile on the sides of the branches, large and showy. Involucre glandular-ciliate and somewhat viscid. Flowers mostly bright blue, but often very pale purple or almost white.

Pastures, road-sides and meadows ; rather common. Introduced from Europe. August – September. In France, this plant is cultivated as a winter salad. The roots of a particular variety are also dried and roasted, when they are used to mix with coffee, to adulterate it, or, as some assert, to improve its flavor.

Subtribe 2. LACTUCEÆ, Cass. *Receptacle not chaffy. Pappus capillary; the bristles mostly soft or fragile, not dilated or thickened at the base, nor plumose.*

49. HIERACIUM. *Tourn.; DC. prodr. 7. p. 202.* HAWK-WEED.

[From the Greek, *hierax*, a hawk; from a strange notion, formerly very prevalent, that hawks and other birds of prey used the juice of this plant to improve their sight.]

Heads many-flowered. Scales of the involucre imbricated, or only in two series; the outer series short and somewhat calyculate. Receptacle alveolate, or slightly pitted and fimbrillate. Achenia oblong, terete or somewhat clavate, not beaked, striate or ribbed. Pappus in a single series, bristly, rough, brittle, brownish white or fuscous.—Perennial herbs, with entire or toothed leaves. Flowers yellow.

§ 1. EUHIERACIUM, Torr. & Gr. *Involucre imbricated: achenia usually tapering towards the base, but not towards the summit.*

1. HIERACIUM CANADENSE, *Michx.* *Sharp-toothed Hawkweed.*

Stem erect, simple or sparingly branched above, leafy; leaves sessile, lanceolate, oblong or ovate-lanceolate, acute, remotely and often incisely serrate with sharp and spreading teeth, the upper ones somewhat clasping; heads corymbose, on rigid thick peduncles; involucre smoothish, the exterior scales mostly spreading in fruit.—*Michx. fl.* 2. *p.* 86; *Monnier, ess. Hier. p.* 37; *Torr. & Gr. fl. N. Am.* 2. *p.* 475. H. virgatum, fasciculatum *and* macrophyllum, *Pursh, fl.* 2. *p.* 504. H. Kalmii, *Spreng. syst.* 3. *p.* 646; *Bigel. fl. Bost. p.* 288; *Torr. compend. p.* 280; *Beck, bot. p.* 166, not of *Linn.*

Stem 1 – 2 feet high, rigid, stout, smoothish or a little pubescent; the peduncles downy. Leaves numerous, 2 – 4 inches long and from half an inch to more than an inch wide, rather thick and rigid, smooth above, somewhat pubescent, especially on the veins underneath, sparingly dentate with sharp spreading or divaricate teeth. Heads rather large, in a simple or compound corymbose panicle; the peduncles downy, or somewhat hispid with a stellate pubescence. Flowers pale yellow; the corolla strongly 5-toothed at the extremity.

Dry fields, borders of woods, etc. Highlands of New-York, and in the western parts of the State; rare. July – August. Easily distinguished from all the following species by its few large heads, rigid peduncles, and strongly toothed leaves.

§ 2. STENOTHECA. Monn. *Involucre cylindrical: the inner scales in a single series: the others few, short and calyculate: achenia columnar or fusiform.*

2. HIERACIUM SCABRUM, *Michx.* *Rough Hawkweed.*

Stem stout, leafy, rough above, hispid below; panicle oblong or elongated, mostly compound, at length fastigiate-corymbose; leaves mostly obovate or oval, entire or somewhat denticulate,

hairy, the lower narrowed at the base, the upper closely sessile; the short thickish peduncles and involucre glandularly hispid and downy; achenia columnar, not attenuate at the summit. —*Michx. fl.* 2. *p.* 86; *Pursh, fl.* 2. *p.* 504; *Monn. l. c.*; *DC. prodr.* 7. *p.* 217; *Torr. & Gr. fl. N. Am.* 2. *p.* 476. H. Marianum, *Willd. sp.* 3. *p.* 1572 (in part); *Bigel. fl. Bost. p.* 288; *Beck, bot. p.* 166. H. Gronovii, *β.*, *Hook. fl. Bor.-Am.* 1. *p.* 300.

Stem 1 – 3 feet high, often very hispid below. Leaves 1½ – 4 inches long, spreading, varying from spatulate-oblong to nearly orbicular, very obtuse, with a small mucronate tip. Panicle at first racemose, consisting of numerous rather small heads on diverging peduncles, which are thickly clothed, as well as the lower part of the involucres, with brownish glandular hairs. Flowers 40 – 50 in each head, pale yellow.

Borders of woods, in dry soil; rather common, particularly on Long Island and in the vicinity of New-York. August – September. This species exudes more milky juice when wounded, than any other of the genus here described. In shady places the stem is often somewhat naked, and the panicle more open.

3. HIERACIUM GRONOVII, *Linn.* *Gronovius's Hawkweed.*

Stem virgate, leafy and very hairy below, naked and minutely pubescent towards the summit, forming an elongated panicle; leaves entire or denticulate, villous-hirsute, especially along the midrib underneath and the margins; the radical and lower cauline oblong-obovate or spatulate; the upper oval or oblong, closely sessile or partly clasping; the slender peduncles and the base of the involucre more or less hispid with glandular hairs; achenia fusiform and almost rostrate —*Linn. sp.* 2. *p.* 802 (syn. *Gronov.*); *Michx. fl.* 2. *p.* 87 (*β.* foliosum); *Pursh, fl.* 2. *p.* 503; *Ell. sk.* 2. *p.* 263; *Hook. fl. Bor.-Am.* 1. *p.* 298; *Torr. & Gr. fl. N. Am.* 2. *p.* 477; not of *herb. Linn., Willd., DC. &c.* H. Marianum, *Willd. sp.* 3. *p.* 1572 (partly); *DC. prodr.* 7. *p.* 217; *Nutt. in trans. Amer. phil. soc.* (n. ser.) 7. *p.* 446. Stenotheca Mariana, *Monn. l. c. p.* 72. *t.* 2. *f. A.*

var. *subnudum:* stem slender, with one or few leaves near the base, naked and often smooth above. *Torr. & Gr. l. c.* H. subnudum, *Frœl. in DC. l. c.* Stenotheca subnuda, *Monn. l. c. t.* 2. *f. A. no.* 5.

Stem 1½ – 2 feet high, mostly simple, paniculate at the summit. Leaves sprinkled with longish hairs; the lower ones tapering into a petiole at the base. Heads disposed in a long naked panicle. Involucre hispid only on the lower portion, many-flowered. Achenia tapering to each end, slender.

Dry sandy soils, often in pine woods; rare. July – September. From *H. venosum*, this species is distinguished by its narrow panicle, shorter peduncles, hairy base of the stem, and by the somewhat rostrate achenia. *H. scabrum* differs in stout leafy stem, much shorter peduncles, and truncate achenia.

4. HIERACIUM VENOSUM, *Linn.* *Rattlesnake-weed.*

Stem scape-like, naked or with a single leaf, smooth, slender, loosely corymbose-paniculate above, with long slender smoothish peduncles; radical leaves obovate or spatulate-oblong, entire or obscurely denticulate, hairy on the margins and midrib, the veins usually purple; involucre smooth, or minutely glandular-hispid toward the base; achenia linear, scarcely narrowed at the summit. — *Linn. sp.* 2. *p.* 800; *Pursh, fl.* 2. *p.* 502; *Ell. sk.* 2. *p.* 262; *Bigel. fl. Bost. p.* 288; *Hook. fl. Bor.-Am.* 1. *p.* 297; *Beck, bot. p.* 166; *Darlingt. fl. Cest. p.* 446; *DC. prodr.* 7. *p.* 217; *Torr. & Gr. fl. N. Am.* 2. *p.* 478. Stenotheca venosa, *Monn. l. c. p.* 72.

var. *subcaulescens:* stem more or less leafy near the base; the cauline leaves sessile or clasping. *Torr. & Gr. l. c.* H. Gronovii, *Linn. herb. & sp.* 2. *p.* 802 (excl. syn. *Gron.*); *Michx. fl.* 2. *p.* 87 (var. *α.*); *DC. l. c.*

Stem or scape 1 – 2 feet high. Leaves spreading on the ground, then tapering to a short petiole, smoothish except on the margins and midrib, usually variegated with deep purplish veins, and sometimes wholly purple underneath, but often uniformly pale green. Panicle widely spreading, and consisting of few heads on forked almost filiform peduncles, which are very sparingly glandular. Involucre about 20-flowered; the flowers bright yellow.

Dry soils, and in open sandy woods; common. June – July. This is one of the numerous plants supposed to be antidotes to the bite of the Rattlesnake, but its virtues are probably overrated, if not altogether imaginary.

5. HIERACIUM PANICULATUM, *Linn.* *Panicled Hawkweed.*

Stem slender, leafy, loosely paniculate, villous towards the base, smooth above; leaves lanceolate, acute at each end, denticulate with spreading teeth, thin and smooth; panicle compound, the peduncles slender, divaricate and smooth; scales of the involucre few, smooth; achenia not contracted at the summit. — *Linn. sp.* 2. *p.* 802; *Michx. fl.* 2. *p.* 86; *Pursh, fl.* 2. *p.* 502; *Ell. sk.* 2. *p.* 264; *Bigel. fl. Bost. p.* 289; *Hook. fl. Bor.-Am.* 1. *p.* 297; *Beck, bot. p.* 166; *Darlingt. fl. Cest. p.* 447; *DC. prodr.* 7. *p.* 222; *Torr. & Gr. fl. N. Am.* 2. *p.* 478.

Stem 1 – 3 feet high. Leaves 2 – 4 inches long and from half an inch to an inch wide, paler underneath; the teeth small, very sharp and projecting. Panicle large and much branched, very slender; the peduncles slightly bracteate. Heads 15 – 20-flowered, small. Involucre of 10 – 12 inner scales; the exterior much shorter.

Woods; usually in damp rather shady places; rather rare. August.

50. NABALUS. *Cass. dict. sc. nat.* 34. *p.* 94, & 69. *p.* 590. *NABALUS.*

Species of PRENANTHES, *Linn.* HARPALYCE, *Don.*

[An unmeaning name.]

Heads 5 – 30-flowered. Involucre cylindrical, of 5 – 14 linear scales in a single series, and calyculate at the base. Receptacle naked. Branches of the style much exserted. Achenia cylindraceous, striate or grooved, not contracted at the apex. Pappus of numerous straw-colored or brownish rough slender bristles. — Perennial herbs. Roots bitter, somewhat tuberous. Stem erect, leafy. Leaves entire or lobed. Heads racemose or paniculate, usually nodding. Flowers whitish, cream-color or purplish.

1. NABALUS ALBUS, *Hook.* *Lion's-foot. Rattlesnake-root. White Lettuce.*

Nearly smooth and somewhat glaucous; stem corymbosely paniculate at the summit; leaves angulate-hastate, irregularly toothed, sinuate-incised, sometimes palmately or pinnately 3 – 5-lobed or parted, with mostly obtuse lobes, the lower petioled, uppermost nearly sessile; heads in short spreading racemes or panicles, somewhat corymbose; involucre of about eight scales, 8 – 12-flowered; pappus deep cinnamon-color. — *Torr. & Gr. fl. N. Am.* 2. *p.* 480. N. albus *and* serpentarius, *Hook. fl. Bor.-Am.* 1. *p.* 293 (in part). N. suavis, *DC. prodr.* 7. *p.* 241. Prenanthes alba, *Linn.; Michx. fl.* 2. *p.* 83; *Bot. mag. t.* 1079; *Pursh, fl.* 2. *p.* 499; *Bigel. fl. Bost. p.* 286; *Darlingt. fl. Cest. p.* 444 (partly). P. suavis, *Salisb. parad. Lond. t.* 85. P. rubicunda, *Willd. sp.* 3. *p.* 1537. Harpalyce alba, *Beck, bot. p.* 167.

var. *Serpentaria*: cauline leaves on slender petioles, deeply sinuate-pinnatifid or 3-parted, the terminal lobe 3-cleft. *Torr. & Gr. l. c.* Prenanthes Serpentaria, *Pursh, fl.* 2. *p.* 499. *t.* 24. P. alba, *var.* Serpentaria, *Torr. compend. p.* 277. Harpalyce Serpentaria, *Don; Beck, l. c.*

Stem stout, 3 – 5 feet high, simple or much branched, usually purplish. Leaves very variable in their outline and lobing, a little ciliate and rough on the margin, pale underneath, rather thin, often decurrent on the petiole. Heads numerous, nodding, 6 – 8 lines long. Involucre commonly purplish and glaucous. Corolla white or cream-color, sometimes tinged with purple. Achenia finely striate.

Copses, borders of woods and hill-sides; frequent. August – September.

2. NABALUS ALTISSIMUS, *Hook.* *Tall Nabalus.*

Smoothish; stem virgate; leaves membranaceous, all petioled, undivided, or the lower ones palmately 3 – 5-cleft or parted, the lobes or leaves acuminate, repandly toothed or denticulate; heads in small axillary or terminal clusters, forming an elongated virgate panicle; involucre of five scales, 5 – 6-flowered; pappus dirty white or straw-color.— *Hook. fl. Bor.-Am.* 1. *p.* 294; *DC. prodr.* 7. *p.* 241 (excl. syn.); *Torr. & Gr. fl. N. Am.* 2. *p.* 481. Prenanthes altissima, *Linn.*; *Pursh, fl.* 2. *p.* 498; *Ell. sk.* 2. *p.* 256; *Torr. compend. p.* 277. Harpalyce altissima, *Beck, bot. p.* 167.

var. *cordatus:* leaves mostly cordate on slender petioles. *Torr. & Gr. l. c.* N. cordatus, *Hook. l. c.* Prenanthes cordata, *Willd. hort. Berol. t.* 25; *Pursh, l. c.*; *Ell. l. c.*

var. *deltoideus:* leaves deltoid, strongly repand-toothed, the upper often cordate; the radical and lowest cauline triangular-hastate, or sometimes 3-parted. *Torr. & Gr. l. c.* N. deltoideus *and* cordatus, *DC. l. c.* Prenanthes deltoidea, *Ell. l. c.*

Stem slender, 3 – 5 feet high, mostly simple except the somewhat paniculate summit. Leaves 3 – 8 inches long and 3 – 6 inches wide at the broadest part, on long slender petioles, extremely variable in form, often quite smooth, or only a little pubescent on the veins and midrib. Heads nodding; the clusters arranged in a somewhat leafy panicle a foot or more in length. Corolla yellowish or greenish white.

Woods, often in shady moist places; rather rare. August – September. Distinguished from the preceding and following species by the acuminate lobes or undivided leaves, and few-flowered involucres.

3. NABALUS FRASERI, *DC.* *Gall of the Earth.*

Smooth or slightly puberulent; stem corymbosely paniculate at the summit; leaves mostly deltoid, variously 3 – 7-lobed, and contracted into winged or margined petioles, the upper nearly sessile and often undivided; racemes paniculate; involucre smooth or slightly hairy, of about eight scales, 8 – 12-flowered; pappus straw-color. — *Torr. & Gr. fl. N. Am.* 2. *p.* 481. N. Fraseri, trilobatus *and* serpentarius, *β.*, *DC. prodr.* 7. *p.* 241. P. rubicunda, *Pursh, fl.* 2. *p.* 499, excl. syn. P. alba, *Ell. sk.* 2. *p.* 259.

var. *integrifolius:* leaves thickish, lanceolate-oblong, acute or obtuse, denticulate or sharply and irregularly toothed; involucre often somewhat hairy. *Torr. & Gr. l. c.* N. integrifolius. *Cass.*; *DC. l. c.*

Stem 2 – 4 feet high, branched. Leaves very variable, in open situations more divided than in the shade; the lobes short and sinuate-denticulate. Involucre often purplish, usually quite smooth. Flowers cream-color, sometimes with a tinge of purple. Achenia finely striate.

Dry sterile or sandy soil; rather common. The var. *integrifolius*, on Long Island near New-York. August – October. Very near *N. albus*, and some of its forms only to be distinguished from that species by its light colored pappus.

4. NABALUS NANUS, *DC.* *Dwarf Nabalus.*

Smooth; stem simple (low); leaves on slender petioles, varying from undivided and angular or toothed, to hastately or palmately 3-lobed or 3-parted; heads clustered, forming a strict racemose panicle; involucre (blackish green) 10 – 13-flowered; inner scales about 8, rather obtuse; the calyculate scales very short, triangular-ovate, appressed; pappus dark straw-color. — *DC. prodr.* 7. *p.* 241; *Torr. & Gr. fl. N. Am.* 2. *p.* 482. Prenanthes alba, *var.* nana, *Bigel. fl. Bost. p.* 286; *Torr. compend. p.* 277 (partly). Harpalyce alba, *β. Beck, bot. p.* 167.

Stem 5 – 12 inches high, smooth. Lower leaves usually 3-parted or hastately 3-lobed, the segments entire or 2 – 3-cleft; the middle and higher ones 3-lobed, with the segments lanceolate or oblong and commonly entire, sometimes hastate-triangular; the uppermost often undivided. Sometimes all the leaves are undivided and hastate, or angular and toothed. Heads nodding, in axillary and terminal clusters forming a close raceme. Involucre slightly hairy at the tips; the interior scales 4 – 5 times longer than the calyculate scales at the base. Flowers whitish.

Summit of Mount Marcy, Essex county. *Fl.* August.

5. NABALUS BOOTTII, *DC.* *Boott's Nabalus.*

Stem simple (low), pubescent at the summit when young; radical and lowest cauline leaves subcordate or hastate-cordate, obtuse, the middle oblong, the upper lanceolate and mostly entire, all petiolate; heads in a nearly simple raceme; involucre (livid) 10 – 18-flowered; the inner scales 10 – 15, obtuse; the calyculate scales linear, lax, nearly half the length of the proper involucre; pappus straw-color.—*DC. prodr.* 7. *p.* 241; *Torr. & Gr. fl. N. Am.* 2. *p.* 482. Prenanthes alba, *var.* nana (in part); *Bigel. fl. Bost. p.* 286.

Stem 5 – 8 inches high. Leaves variable as in the preceding species, but not so much divided. Heads slightly nodding. Scales of the involucre very obtuse, pubescent-ciliate at the tips when young. Flowers whitish, "odorous" (*Tuckerman*).

Summit of Whiteface mountain, Essex county (*Mr. Macrae*). *Fl.* August – September. This species is most readily distinguished from the preceding, with which it was once confounded, by the narrow loose and elongated calyculate scales of the involucre.

51. TARAXACUM. *Haller; DC. prodr.* 7. *p.* 145. *DANDELION.*

[From the Greek, *tarasso*; in allusion to its medicinal properties.]

Heads many-flowered. Involucre double; the exterior of small scales; the inner in a single series. Receptacle naked. Achenia oblong, ribbed or angled, muricate on the ribs; the apex abruptly produced into a long stipe-like beak, which supports the pappus of copious white capillary bristles. — Stemless perennial herbs, with simple fistulous naked scapes. Leaves usually sinuate-toothed, or runcinate. Head solitary, large. Flowers yellow.

1. TARAXACUM DENS-LEONIS, *Desf.* *Common Dandelion.*

Plant at length smooth; leaves equally and acutely runcinate, the lobes toothed anteriorly; exterior scales of the involucre reflexed; achenia muricate at the summit. — *DC. prodr.* 7. *p.* 145; *Torr. & Gr. fl. N. Am.* 2. *p.* 494. Leontodon Taraxacum, *Linn.; Engl. bot. t.* 510; *Pursh, fl.* 2. *p.* 497; *Ell. sk.* 2. *p.* 250; *Bigel. fl. Bost. p.* 286; *Beck, bot. p.* 168; *Darlingt. fl. Cest. p.* 443.

Root thick, descending. Leaves all radical. Scapes often several from one root. Inner scales of the involucre at first appressed, at length reflexed. Beak of the achenia long and very slender, forming a stipe to the diverging pappus.

Pastures, road-sides, etc.; every where very common. Introduced from Europe. April – November. The Dandelion is sometimes used as a salad or potherb, and is also a popular diuretic. An extract of the plant is sold by the Shakers.

52. LACTUCA. *Tourn.; DC. prodr.* 7. *p.* 135. *LETTUCE.*

[From the Latin, *lac*, milk; the plant affording a milky juice.]

Heads few- or several-flowered. Involucre cylindrical; the scales imbricated in 2 – 4 series; the exterior shorter. Receptacle naked. Achenia obcompressed, flat, wingless, abruptly produced into a filiform beak. Pappus of copious very soft and white capillary bristles. — Caulescent herbs, with entire or pinnatifid leaves and paniculate heads.

1. LACTUCA ELONGATA, *Muhl.* *Wild Lettuce. Fire-weed.*

Stem tall, paniculate at the summit; leaves partly clasping, pale underneath, the upper usually lanceolate and entire, the lower runcinate-pinnatifid; heads in an elongated leafless panicle; achenia oval, longer than the beak. — *Torr. & Gr. fl. N. Am.* 2. *p.* 496.

var. 1. *longifolia:* smooth or slightly hairy; upper leaves lanceolate and often entire; the lower runcinate-pinnatifid, with the lobes entire or repand-toothed, terminal lobe elongated; flowers mostly yellow. — *Torr. & Gr. l. c.* L. longifolia, *Michx. fl.* 2. *p.* 85. L. elongata, *Muhl. in Willd. sp.* 3. *p.* 1523; *Pursh, fl.* 2. *p.* 500; *Ell. sk.* 2. *p.* 252; *Bigel. fl. Bost. p.* 287; *Hook. fl. Bor.-Am.* 1. *p.* 296; *Beck, bot. p.* 169; *Darlingt. fl. Cest. p.* 443; *DC. prodr.* 7. *p.* 137. Galathenium elongatum, *Nutt. in trans. Amer. phil. soc.* (n. ser.) 7. *p.* 443.

var. 2. *integrifolia:* smooth; leaves all or nearly all undivided, lanceolate, acute or acuminate, entire or repand-denticulate, the lowest sometimes pinnatifid; flowers often tinged with purple. — *Torr. & Gr. l. c.* L. integrifolia, *Bigel. fl. Bost. p.* 287; *Beck, bot. p.* 169; *DC. prodr.* 7. *p.* 137, not of *Nutt.* L. sagittifolia, *Ell. sk.* 2. *p.* 253; *DC. l. c.* Galathenium integrifolium (*and* salicifolium, *partly*), *Nutt. l. c.*

var. 3. *sanguinea:* leaves all or nearly all runcinate, mostly hairy (as well as the stem), particularly on the midrib underneath, the terminal lobe not prolonged; flowers usually more or less tinged with purple or red. — *Torr. & Gr. l. c.* L. hirsuta, *Muhl. cat. p.* 72; *Nutt. gen.* 2. *p.* 124; *Beck, bot. p.* 169. L. sanguinea, *Bigel. l. c.; DC. l. c.* Galathenium sanguineum, *Nutt. trans. Am. phil. soc. l. c.*

Stem 2 – 8 feet high (in *var.* 3. smaller), simple, stout, hollow. Leaves extremely variable; in *vars.* 1. and 3. usually with 2 – 3 runcinate more or less toothed lobes on each side. Heads rather smaller than in the garden Lettuce. Flowers in *var.* 2. light yellow or cream-color, often tinged with purple or blue; in *var.* 3. yellow varying to purple, or dark red.

Woods, fields and bushy places; the first variety very common, particularly in grounds newly burnt over; the other forms in the vicinity of New-York, rare. July – August. — According to M. Aubergier, this species does not yield the narcotic substance called *lactucarium*, found in the Garden Lettuce. The milky juice is insipid and sweetish.

53. MULGEDIUM. *Cass.; DC. prodr. 7. p. 247.* *MULGEDIUM.*

AGATHYRSUS, *D. Don.*

[From the Latin, *mulgeo*, to milk; on account of its yielding a white juice when wounded.]

Heads many-flowered. Involucre imbricated; the exterior scales much shorter than the interior. Receptacle naked, foveolate. Achenia smooth, compressed; the summit contracted into a more or less evident continuous beak, the apex of which is expanded into a flattish ciliolate disk. Pappus of copious roughish bristles.— Caulescent herbs, with pinnatifid or undivided leaves, and paniculate or racemose heads. Flowers blue, rarely dull bluish white or cream-colored.

§ 1. EUMULGEDIUM, DC. *Pappus bright white: corolla blue or purple.*

1. MULGEDIUM ACUMINATUM, *DC.* *Sharp-leaved Mulgedium.*

Smooth; stem-leaves ovate, acuminate, denticulate or toothed, slightly hairy on the midrib and veins underneath, contracted at the base into a winged petiole, the radical ones sometimes slightly runcinate; heads in a loose divaricate panicle, the peduncles somewhat scaly; involucre smooth, calyculate-imbricated; achenia slightly beaked. — *DC. prodr. 7. p. 250; Torr. & Gr. fl. N. Am. 2. p. 498.* Sonchus acuminatus, *Willd. sp. 3. p. 1521; Pursh, fl. 2. p. 502; Ell. sk. 2. p. 255; Torr. compend. p. 279; Darlingt. fl. Cest. p. 446.* S. Floridanus, *Michx. fl. 2. p. 85* (partly). Lactuca villosa, "*Jacq. hort. Schœnb. 3. t. 367;*" *Beck, bot. p. 170.*

Biennial. Stem 3 – 6 feet high, slender, loosely paniculate at the summit. Leaves 4 – 8 inches long and 1 – 3 inches wide, thin, the lowest sometimes deltoid or triangular-hastate, sinuate-denticulate, smooth above, more or less hairy on the veins underneath; the winged petiole 1 – 3 inches long. Heads rather few; the widely spreading slender peduncles furnished with scattered minute scales. Involucre ventricose below. Flowers blue. Achenia much compressed, strongly marked with several ribs on each side, and minutely rugulous transversely; the slight beak ending in a small whitish disk which supports the pappus.

Thickets and borders of woods, in moist rocky places; near New-York. August – September.

§ 2. AGALMA, DC. *Pappus tawny: corolla light blue or cream-colored.*

2. MULGEDIUM LEUCOPHÆUM, *DC.* *Tall Mulgedium.*

Smoothish; stem tall, very leafy, stout; leaves somewhat runcinate-pinnatifid, coarsely and unequally toothed, usually hairy on the veins underneath; heads in a large rather open compound panicle; peduncles racemose, bracteolate; achenia slightly beaked.— *DC. prodr. 7. p. 250*; *Torr. & Gr. fl. N. Am. 2. p. 499.* Sonchus alpinus, *Linn.* (the character only); *Smith, ic. pl. rar. t. 21.* S. Canadensis, *Linn.* (as to the habitat). S. spicatus, *Lam.* S. leucophæus, *Willd. sp. 3 p. 1520*; *Pursh, fl. 2. p. 501.* S. acuminatus, *Bigel. fl. Bost. p. 290.* S. Floridanus, *Ait.*; *Darlingt. fl. Cest. p. 445*; not of *Linn.* S pallidus, *Torr. compend. p. 279.* Agathyrsus leucophæus, *D. Don*; *Beck, bot. p. 170.*

Biennial. Stem 3 – 10 feet high, smooth or slightly hairy, paniculate at the summit. Leaves large, rather thin, irregularly more or less deeply lobed; the uppermost ones often entire; lower ones narrowed at the base. Heads about half an inch long, numerous, in an elongated panicle; the peduncles clothed with a few lanceolate bracteoles. Flowers bluish white or cream-color, changing to dull blue. Achenia strongly ribbed.

Thickets, along fences, etc.; common on Long Island; rare in the interior of the State. August – September.

54. SONCHUS. *Linn.*; *DC. prodr. 7. p. 184.* *SOW-THISTLE.*

[Said to be altered from *somphos* (Greek), soft; in allusion to the soft tender stems.]

Heads many-flowered, swollen at the base. Involucre more or less imbricated. Receptacle naked. Achenia compressed, ribbed, not beaked or contracted at the summit. Pappus of copious very white and fine capillary bristles.— Weed-like, mostly caulescent herbs, with undivided or pinnatifid leaves. Heads often umbellate or corymbose. Flowers yellow.

1. SONCHUS OLERACEUS, *Linn.* *Common Sow-thistle.*

Annual, smooth, or the branches glandular-hairy near the summit; stem-leaves runcinate-pinnatifid, or the upper ones undivided, spinulose-toothed, cordate-clasping, the auricles acute or acuminate; heads umbellate-corymbose, the peduncles and involucre woolly when young, at length nearly smooth; achenia striate, transversely rugose.— *Linn. sp. 2. p. 794* (*var* lævis); *Engl. bot. t. 843*; *Bigel. fl. Bost. p. 289*; *Beck, bot. p. 171*; *Darlingt. fl. Cest. p. 445*; *Hook. fl. Bor.-Am. 1. p. 292*; *Torr. & Gr.* S. ciliatus, *Lam.*; *DC. prodr. 7. p. 185.*

Stem 2 – 3 feet high, terete, fistular, brittle, branching. Leaves 2 – 6 inches long, more or less deeply lobed or sinuate, undulate; the teeth and segments cuspidate. The corymbose panicle at first contracted, at length rather loose. Peduncles from half an inch to an inch and half long, at first clothed with a loose white down, finally smooth. Heads less than half as large as in the Dandelion. Flowers pale yellow. Achenia beautifully striate-ribbed, and roughened with minute transverse rugæ. Pappus very soft and silky.

Waste grounds, gardens, etc.; common. Introduced from Europe. August – September.

2. Sonchus asper, *Vill.* *Spiny-leaved Sow-thistle.*

Annual, smooth, or somewhat glandular-hairy at the summit; stem-leaves undivided, undulate or slightly uncinate, conspicuously spinulose-toothed, cordate-clasping, with the auricles usually rounded, the lower oval or spatulate, with a slender tapering base; heads umbellate-corymbose, the peduncles and involucre smooth or a little hairy; achenia margined, 3-nerved on each side, smooth, or the margins minutely rough.—*Fl. Dan. t.* 893; *Torr. & Gr. fl. N. Am.* 2. *p.* 501. S. oleraceus, *var.* asper, *Linn.; Bower in Engl. bot. suppl.* 2765 & 2766. S. oleraceus, *var.* spinulosus, *Oakes, cat. pl. Vermont.* S. spinosus, *Lam.* S. fallax, *Wall.; DC. prodr.* 7. *p.* 185. S. Carolinianus, *Walt. fl. Car. p.* 192; *Ell. sk.* 2. *p.* 255; *DC. l. c.* S. spinulosus, *Bigel. fl. Bost. p.* 290; *Beck, bot. p.* 171; *Darlingt. fl. Cest. p.* 445; *DC. l. c.*

Stem about two feet high. Leaves 3 – 8 inches long; the cauline dilated at the base and conspicuously clasping, with numerous spreading prickly teeth on the margin. Heads in a rather loose umbel or corymb, rather smaller than in the preceding species; the peduncles often with a few glandular hairs. Achenia nearly smooth, or only slightly roughened.

Waste places and cultivated grounds; less common than the preceding species, of which many botanists consider it a variety, and into which it seems occasionally to pass. Introduced from Europe. August – September.

3. Sonchus arvensis, *Linn.* *Large-flowered Sow-thistle.*

Root perennial, creeping; stem smooth; leaves runcinate-pinnatifid, spinulose-toothed, cordate-clasping at the base, the auricles short and obtuse; panicle umbellate-corymbose, the peduncles and involucre glandular-hispid; achenia somewhat 4-sided, strongly ribbed, transversely rugulose. — *Engl. bot. t.* 674; *Pursh, fl.* 2. *p.* 505; *Beck, bot. p.* 171; *Hook. fl. Bor.-Am.* 1. *p.* 292; *Torr. & Gr. fl. N. Am.* 2. *p.* 501.

Stem about 2 feet high, rather stout, branching. Lower and radical leaves 8 – 10 inches long, tapering at the base; the cauline strongly runcinate. Heads as large as in the Dandelion, in a loose corymbose panicle. Flowers pale yellow. Receptacle hairy?

Shores of Staten Island, not far from the Quarantine. Introduced from Europe. August – September.

GROUP 3. *Ovary coherent with the calyx, 2 – 7-celled (rarely one-celled), with numerous ovules. Seeds albuminous. Stamens inserted with the corolla upon an epigynous disk: anthers not opening by pores.*

ORDER LVI. LOBELIACEÆ. *Juss.* THE LOBELIA TRIBE.

Calyx 5-lobed or 5-toothed. Corolla irregularly 5-lobed and mostly 2-lipped, cleft on one side nearly to the base. Stamens 5; the upper part of the filaments, and the anther, cohering into a tube. Stigma surrounded with a cup-like fringe. Fruit capsular, 2 – 3- (rarely 1-) celled, many-seeded. — Herbaceous or somewhat shrubby plants, often yielding a milky juice. Leaves alternate, without stipules, often toothed. Flowers usually showy, axillary or in terminal racemes.— Many of the plants of this order are highly active and deleterious.

1. LOBELIA. *Linn.; Endl. gen.* 3058. *LOBELIA.*

[In honor of MATTHIAS DE LOBEL, a Flemish botanist, who died in 1616.]

Calyx 5-lobed; the tube obconical or hemispherical. Corolla cleft on the upper side, 2-lipped; the tube cylindrical or funnel-form, straight; upper lip often smaller and erect; the lower 3-cleft. The two inferior anthers (rarely all) bearded at the summit. Capsule 2-celled; the upper part sometimes free from the calyx, opening at the summit. — Mostly herbs; flowers often in bracteate racemose spikes.

1. LOBELIA KALMII, *Linn.* *Kalm's Lobelia.*

Plant smooth; stem usually branched; leaves remotely denticulate, the cauline linear, radical ones oblong-spatulate; raceme loose, few-flowered, with leaf-like narrowly linear bracts; pedicels longer than the fruit, with two minute bracteoles near the flower; tube of the calyx obovate, acute at the base. — *Linn. sp.* 2. *p.* 929; *Michx. fl.* 2. *p.* 153; *Pursh, fl.* 2. *p.* 446; *Nutt. gen.* 2. *p.* 76; *Bigel. fl. Bost. p.* 86; *Torr. fl.* 1. *p.* 239; *Bot. mag. t.* 2238; *Hook. fl. Bor.-Am.* 2. *p.* 30; *Beck, bot. p.* 214; *DC. prodr.* 7. *p.* 374.

Biennial. Stem 8 – 12 inches or more high, slender, erect or assurgent. Leaves 1 – 2 inches long and 1 – 1½ line wide, with a few minute repand teeth. Pedicels 6 – 12 lines long, slender. Calyx smooth; the segments lanceolate, and longer than the tube. Corolla about half an inch long, of a rather pale but clear blue; the segments of the lower lip ovate, acute. Capsule adhering to the tube of the calyx.

On wet rocks; not uncommon in the northern and western parts of the State. A very neat and delicate species. *Fl.* July – August.

2. LOBELIA NUTTALLII, *Rœm. & Schult.* *Nuttall's Lobelia.*

Stem very slender, minutely scabrous, simple, or with few filiform erect branches; leaves remotely denticulate, the cauline oblong-linear, radical oblong-spatulate; raceme virgate, loose, few-flowered; pedicels shorter than the flower, with minute bracteoles near the base; capsule rather obtuse below. — *Rœm. & Schult. syst.* 5. *p.* 39; *Torr. fl.* 1. *p.* 240; *Beck, bot. p.* 214; *DC. prodr.* 7. *p.* 374. L. gracilis, *Nutt. gen.* 2. *p.* 77, not of *Andr.* L. Kalmii, *var.* gracilis, *Bart. fl. Am. Sept. t.* 34. *no.* 2; *Ell. sk.* 1. *p.* 264.

Biennial. Stem 1 – 2 feet high, erect, often flexuous. Leaves about an inch long and 1 – 2 lines wide; the radical ones a little hairy. Flowers remote, in a slender raceme, pale blue, smaller than in the preceding species; the pedicels 2 – 3 lines long, with two opposite minute bracteoles, often colored. Seeds ovate, rough.

Sandy swamps and borders of salt marshes, Suffolk county, Long Island; also near Jamaica (*Mr. F. C. Schæffer*). July – September. This species, which is very common in the sandy region of New-Jersey, is nearly allied to the preceding, and has been confounded with it by many botanists. It is best distinguished by its more slender habit, and shorter pedicels with small bracteoles near their base.

3. LOBELIA SPICATA, *Lam.* *Pale-spiked Lobelia.*

Stem simple, pubescent; leaves pubescent, sessile, mostly obtuse, obscurely denticulate, the cauline oblong, radical spatulate-obovate; raceme virgate, naked; bracts about the length of the pedicels; calyx smooth, the segments subulate, nearly as long as the tube of the corolla. — *Lam. dict.* 3. *p.* 587; *DC. prodr.* 7. *p.* 374. L. Claytoniana, *Michx. fl.* 2. *p.* 153; *Pursh, fl.* 2. *p.* 447; *Ell. sk.* 1. *p.* 265; *Torr. fl.* 1. *p.* 240; *Darlingt. fl. Cest. p.* 151; *Hook. fl. Bor.-Am.* 2. *p.* 30. L. pallida, *Muhl. cat. p.* 22; *Bigel. fl. Bost. p.* 86. L. goodenioides, *Willd. hort. Berol.* 1. *p.* 30. *t.* 30.

Root perennial. Stem 1 – 3 feet high, erect, mostly straight, rather slender. Radical leaves 2 inches or more in length, nearly entire; stem-leaves obscurely crenate-denticulate. Raceme spike-like, from six inches to a foot in length, many-flowered. Pedicels about 3 lines long, erect, with a lanceolate-denticulate bract at the base. Flowers pale blue, about half an inch long. Segments of the calyx not appendiculate at the base. Seeds acute at each end.

Dry open woods, fields and meadows; frequent. July – August. The synonym of Elliott belongs perhaps to *L. leptostachys*, DC., as that species commonly takes the place of *L. spicata* in the Southern States.

4. LOBELIA DORTMANNA, *Linn.* *Water Gladiole.*

Stem scape-like, nearly naked; radical leaves in a rosulate cluster, terete, fleshy, 2-celled; those of the stem few, very small; flowers few, remote, the pedicels three times as long as the bracts. — *Linn. sp.* 2. *p.* 929; *Engl. bot. t.* 140; *Michx. fl.* 2. *p.* 153; *Pursh, fl.* 2. *p.* 446; *Bigel. fl. Bost. p.* 87; *Torr. fl.* 1. *p.* 239, excl. syn. *Nutt.*; *Beck, bot. p.* 214; *Hook. fl. Bor.-Am.* 2. *p.* 29; *DC. prodr.* 7. *p.* 376.

Root perennial, fibrous. Stem or scape 6 – 15 inches long, erect, simple, hollow. Radical leaves growing under water, 1 – 3 inches long, spreading and recurved, obtuse, of a fleshy appearance, but consisting of two empty united tubes, with a longitudinal partition; cauline leaves 2 – 3, very remote, linear, 3 – 4 lines long. Flowers 3 – 4, nodding; the pedicels about half an inch long. Calyx smooth, acute at the base; the segments linear, at first longer, but finally shorter than the tube. Corolla pale blue, half an inch long; the upper segments linear, the lower lanceolate. Filaments free at the base: anthers hairy; the 2 lower bearded at the tip. Ovary partly free from the calyx. Seeds oblong, rough.

Borders of freshwater ponds and rivulets. Northern part of the State. Near West-Point (*Prof. Bailey*); Sag-Harbor on Long Island (*Mr. Buckley*). July – September. A singular species, indigenous also to Europe.

5. LOBELIA SYPHILITICA, *Linn.* (Plate LXII.) *Blue Cardinal-flower.*

Stem somewhat hairy; leaves ovate-lanceolate, acute at each end, irregularly denticulate-serrate; flowers (large) in a dense spiked raceme, the lower ones axillary; pedicels much shorter than the leaf-like bracts; calyx hispidly ciliate, the tube hemispherical; lobes lanceolate, auriculate at the base; the auricles reflexed, and 2-cleft.—*Linn. sp.* 2. *p.* 931; *Michx. fl.* 2. *p.* 151; *Ker, bot. reg. t.* 537; *Pursh, fl.* 2. *p.* 447; *Ell. sk.* 2. *p.* 256; *Torr. fl.* 1. *p.* 241; *Beck, bot. p.* 215; *Darlingt. fl. Cest. p.* 154; *DC. prodr.* 7. *p.* 337.

Perennial. Stem 1 – 2½ feet high, erect, simple, hairy on the angles. Leaves 3 – 6 inches long and an inch or more wide, sprinkled with appressed hairs, sessile. Raceme 6 – 10 inches long, the lower part leafy; the leaves gradually diminishing in size upward, and passing into bracts. Flowers nearly an inch long, on short pedicels. Calyx shorter than the tube of the corolla; the margin of the sinuses reflexed, and produced into oblong auricles. Corolla bright blue, or sometimes white. Capsule free above.

Low grounds, and borders of streams; rather common. August – September.

This plant is emetic, cathartic and diuretic, but is not so active as the following species. "In the application of one of the common names to this plant, is a curious instance of committing a pun without committing a sin. Being much taller and more robust than the *L. inflata*, which is frequently used in domestic practice under the name of *Low belia*, it was supposed as a matter of course by those better acquainted with its near affinity to the latter, than with its etymology, that it must be *High belia!*" (*Dr. J. M. Bigelow in trans. med. conv. Ohio*, 1841.)

6. LOBELIA INFLATA, *Linn.* (Plate LXIII.) *Indian Tobacco.*

Stem more or less hairy, paniculately branched above; leaves ovate-lanceolate, unequally crenate-dentate, a little hairy; racemes leafy; calyx-segments as long as the corolla; capsules ovoid, inflated. — *Linn. sp.* 2. *p.* 931; *Michx. fl.* 2. *p.* 152; *Pursh, fl.* 2. *p.* 448; *Bigel. fl. Bost. p.* 86, *and med. bot.* 1. *p.* 177. *t.* 19; *Bart. veg. mat. med. t.* 16; *Torr. fl.* 1. *p.* 241; *Beck, bot. p.* 215; *Darlingt. fl. Cest. p.* 155; *DC. prodr.* 7. *p.* 380.

Root biennial. Stem 12 – 18 inches high, erect, sometimes very hairy, angular and slightly winged. Leaves 1 – 3 inches long, sessile, rather acute. Peduncles much shorter than the bracteal leaves. Segments of the calyx linear. Corolla small, pale blue. Capsule 10-nerved, much inflated. Seeds very numerous, oblong, brownish, rough.

Fields, road-sides, etc.; common. July – September. — This plant is well known for its acrid and emetic qualities, and for being the chief remedy of those empirics called *botanic physicians*, and *root-doctors*. It is a most dangerous article, even in the hands of skilful practitioners. The active ingredient is a peculiar principle called *lobeline*. It has not yet been obtained pure, but seems to be of an alkaline nature. It is soluble in water and in alcohol, but not in ether. (See the *Chemical Gazette*, for August 1, 1843.)

7. LOBELIA CARDINALIS, *Linn.* (Plate LXIV.) *Cardinal-flower.*

Stem pubescent; leaves oblong-lanceolate, acute at each end, unequally denticulate-serrate, minutely and roughish pubescent; raceme somewhat secund; calyx smoothish, with a very short tube, the segments linear, half as long as the tube of the corolla; anthers exserted, the two lower ones densely bearded. — *Linn. sp.* 2. *p.* 930; *Bot. mag. t.* 320; *Michx. fl.* 2. *p.* 151; *Pursh, fl.* 2. *p.* 448; *Ell. sk.* 1. *p.* 268; *Bigel. fl. Bost. p.* 85; *Torr. fl.* 1. *p.* 242; *Beck, bot. p.* 215; *Darlingt. fl. Cest. p.* 154; *DC. prodr.* 7. *p.* 382.

Perennial. Stem erect, 2 – 3 feet high, simple. Leaves 3 – 5 inches long and an inch or more in breadth, with a long tapering base. Raceme 6 – 12 inches long, usually more or less secund; the slender pedicels 3 – 6 lines long, much shorter than the linear-lanceolate bracts. Flowers large and very showy. Corolla bright scarlet; the tube slender; segments of the lower lip oblong-lanceolate, of the upper linear-oblong. Filaments red: anthers blue. Stigma 2-lobed, at length protruded.

Swamps and borders of rivulets; common. July – October. A superb plant when in full flower. It grows readily when transplanted, even in dry soil.

ORDER LVII. CAMPANULACEÆ. *DC.* THE BELL-FLOWER TRIBE.

Calyx mostly 5-lobed (sometimes 3 – 8-lobed), persistent. Corolla regular, mostly campanulate, usually 5-lobed, withering. Stamens 5 (rarely 3 – 8), distinct: pollen spherical, rough. Ovary adherent to the calyx; style furnished with collecting hairs. Capsule 2 – several-celled, many-seeded. Embryo straight, in the axis of fleshy albumen.—Herbaceous plants, with a milky juice. Leaves alternate, mostly toothed and undivided. Flowers usually showy.

1. CAMPANULA. *Linn.* (in part); *Endl. gen.* 3085. *BELL-FLOWER.*

[Named from the Latin, *campanula*, a little bell; in allusion to the form of the flowers.]

Calyx 5-cleft. Corolla 5-lobed or 5-cleft, usually campanulate. Stamens 5; the filaments broad and membranaceous at the base. Style covered with collecting hairs: stigmas 3 or 5, filiform. Seeds ovoid or lenticular. — Mostly perennial herbs. Flowers axillary, racemose, or in terminal panicles.

All of the following species belong to the section *Eucodon* of Alph. DC., in which the sinuses of the calyx are not appendaged or reflexed.

1. CAMPANULA ROTUNDIFOLIA, *Linn.* *Harebell.*

Radical leaves petiolate, reniform-cordate, crenately toothed; stem-leaves linear, entire; flowers few, drooping; segments of the calyx subulate, erect, one-third or one-half the length of the campanulate corolla.— *Linn. sp.* 1. *p.* 163; *Engl. bot. t.* 866; *Michx. fl.* 1. *p.* 108; *Pursh, fl.* 1. *p.* 159; *Torr. fl.* 1. *p.* 236; *Beck, bot. p.* 213; *Hook. fl. Bor.-Am.* 2. *p.* 27; *DC. prodr.* 7. *p.* 471.

Root perennial, creeping. Stems smooth, erect or assurgent, 8 – 12 or more inches in height, sometimes several from one root. Radical leaves on long slender petioles, soon withering; the lamina about half an inch in diameter; the cauline leaves 2 – 3 inches long, and generally very narrow, but sometimes 2 – 3 lines wide. Flowers few (on high mountains sometimes almost or quite solitary), in a loose terminal raceme or panicle; the pedicels long and slender. Segments of the calyx commonly about one-third the length of the corolla, which is of a bright blue color, with broadly ovate acute segments.

Rocky banks of rivers, and on mountains. Fishkill mountains; Troy; Trenton and Niagara falls; and rather common in the northern part of the State. June – August. A slender and graceful plant; common to Europe and North America.

2. CAMPANULA APARINOIDES, *Pursh.* *Slender Swamp Bell-flower.*

Stem slender, flaccid, much branched above, acutely somewhat triangular; the angles, with the margin and midrib of the leaves retrorsely aculeate; leaves linear-lanceolate, remotely crenate-denticulate; pedicels slender, flexuous; lobes of the calyx triangular, one-third the length of the campanulate corolla. — *Pursh, fl.* 1. *p.* 159; *Torr. fl.* 1. *p.* 237 (excl. syn. *Michx.*); *Beck, bot. p.* 213; *Darlingt. fl. Cest. p.* 157; *DC. prodr.* 7. *p.* 472. C. erinoides, *Muhl. cat. p.* 22; *Bigel. fl. Bost. p.* 85; *Ell. sk.* 1. *p.* 263, not of *Linn.*; *Hook. fl. Bor.-Am.* 2. *p.* 28.

Root perennial? Stem about a foot high, usually supported by other plants; the angles almost winged. Leaves sessile, about an inch long, acute at each end, smooth above. Flowers 3 – 4 lines long, very small, nodding; the pedicels spreading. Calyx smooth. Corolla white, with pale blue veins; the lobes ovate, acute. Filaments hairy. Style as long as the corolla. Capsule globose, 3-celled.

Wet meadows, among high grass; not uncommon in the valley of the Hudson, and in the northern parts of the State, but rare in the western counties. June – August.

3. CAMPANULA AMERICANA, *Linn.* *American Bell-flower.*

Leaves ovate-lanceolate, much acuminate, uncinately serrate, somewhat hairy, narrowed at the base, the lowest ones often somewhat cordate; flowers solitary or several together, in a long leafy spike; tube of the calyx elongated and obconical, the segments shorter than the campanulate-rotate corolla. — *Linn. sp.* 1. *p.* 164; *Torr. fl.* 1. *p.* 237; *Beck, bot. p.* 213; *Darlingt. fl. Cest. p.* 156; *Hook. fl. Bor-Am.* 2. *p.* 28; *DC. prodr.* 7. *p.* 478. C. acuminata, *Michx. fl.* 1. *p.* 108; *Pursh, fl.* 1. *p.* 159; *Ell. sk.* 1. *p.* 202; *Torr. l. c.* C. obliqua, "*Jacq. hort. Schœnbr.* 3. *t.* 336."

Root biennial. Stem 2 – 3 feet high, erect, simple or somewhat branched, smoothish or a little hairy. Leaves 2 – 4 inches long and an inch or more wide, sparingly pubescent on both sides with short appressed hairs, the margin ciliate; the lowest ones contracted into a petiole at the base. Flowers numerous, rather showy, sessile; the lower part of the spike leafy. Calyx smooth; the segments subulate-lanceolate, spreading. Corolla pale purplish blue. Style long and exserted. Ripe capsule more than half an inch long, tapering at the base. Seed ovoid-lenticular, shining, strongly margined.

Moist shady places. Near Troy (*Dr. Aikin* and *Dr. Wright*); Penn-Yan (*Dr. Sartwell*); Chemung valley, and on the Conewango river (*Dr. Knieskern*); Falls of Niagara (*Mr. Cooper*). July – August.

2. SPECULARIA. *Heist.; Alph. DC. mon. Campan. p.* 44; *Endl. gen.* 3086.

[So called from the ancient name of one of the species, *Speculum Veneris.*] *SPECULARIA.*

Calyx 5-lobed (or by abortion 3 – 4-lobed); the tube elongated, prismatic or obconical. Corolla rotate, 5-lobed. Stamens 5, free; the filaments membranaceous, hairy, shorter than the anthers. Stigmas 3. Capsule elongated or oblong, prismatic, 3-celled, opening near the summit, or in the middle by 3 valves. — Annual herbs, with sessile leaves and flowers.

§ TRIODALLIS, Raf. (*Dysmicodon*, Endl., Nutt.) *Calyx in the lower imperfect flowers* 3 – 5-*cleft; the stamens and sessile stigmas concealed by a minute connivent* 5-*petalled corolla: calyx-tube oblong- or linear-obconical, without prominent angles: capsule* 2 – 3-*celled: seeds lenticular.*

1. SPECULARIA PERFOLIATA, *Alph. DC.* (Pl. LXV.) *Clasping Specularia.*

Stem angular; leaves roundish-cordate, crenate, strongly clasping, the margin ciliolate-scabrous; flowers axillary, solitary or glomerate; calyx smooth; capsule oblong-obconical, opening rather below the middle. — *Alph. DC. l. c. p.* 35, *and in DC. prodr.* 7. *p.* 490 (in part); *Hook. fl. Bor.-Am.* 2. *p.* 29. C. perfoliata, *Linn. sp.* 1. *p.* 169; *Pursh, fl.* 1. *p.* 116; *Bigel. fl. Bost. p.* 85. C. amplexicaulis, *Michx. fl.* 1. *p.* 108; *Ell. sk.* 1. *p.* 262; *Torr. fl.* 1. *p.* 236; *Beck, bot. p.* 213; *Darlingt. fl. Cest. p.* 156.

Stem 8 – 15 inches high, usually simple, erect; the slightly prominent angles hispid with short spreading or retrorse bristles. Leaves about three-fourths of an inch in length and often broader than long, smoothish above; the veins underneath prominent and somewhat hispid. Primary (lower) flowers apparently destitute of corolla, stamens and style; but with a perfect ovary, crowned with 3 – 5 subulate-lanceolate calyx-segments. The throat of the calyx is closed with what at first appears to be a small circular membrane, but which readily splits into 5 acute scales which meet in a valvate manner, constituting a minute 5-petalled corolla. On raising this, 5 small stamens are found, alternating with the scales; and on the summit of the ovary is a distinct sessile capitate 3-lobed stigma. The corolla seems never to open spontaneously, but the stamens perform their function, and the impregnated ovules mature into perfect seeds. The lowest of these singular flowers usually have the calyx 3-cleft, and the highest 5-cleft, while in the intermediate ones the segments vary from three to four. Later in the season, the regular flowers, with a large bluish purple corolla, are unfolded at the upper part of the stem. In these the calyx-segments are mostly about two-thirds of the length of the corolla. The capsule of both kinds of flowers is about one-third of an inch long, membranaceous, 2 – 3-celled, opening below the middle by 2 – 3 little oval valves, which separate at the lower part, and roll upward; each orifice opening into two contiguous cells of the capsule. Seeds very numerous and minute, oval-lenticular, smooth and shining.

Dry fields, hill-sides, etc.; common. May – July. The structure of the early flowers of

this plant, and of an allied but very distinct species from Louisiana, were described by me in a memoir read before the New-York Lyceum of Natural History, in 1830. Sometimes (in very sterile or shady places) a dwarf form of the plant occurs, in which all the flowers are of the abnormal kind; as noticed in my Flora of the Northern and Middle States, p. 237. Although known to Linnæus* (who, however, was not aware of their true structure), yet his account of them has been overlooked until quite recently; and they are unnoticed even in the admirable *Monogr. des Campanulées*, of Alph. De Candolle. A. de Jussieu (*Archives du Museum*, 3. *p.* 84. 1843) says that the *Campanula perfoliata* cultivated in the Jardin des Plantes, bears the two kinds of flowers; and that Adolphe Brongniart had discovered in the abnormal ones, the corolla, stamens and stigmas, but that his account of them had not been published. The two kinds of flowers are represented in the plate of *Campanula biflora*, of *Ruiz & Pavon, fl. Peruv.* 2. *t.* 200. *f.* 6, which Alph. De Candolle has, I think, incorrectly referred to *Specularia perfoliata*.

GROUP 4. *Ovary free (superior), or sometimes coherent with the calyx, with two or more cells and numerous ovules. Seeds albuminous. Stamens inserted with the corolla, or rarely coherent with its base, as many or twice as many as its lobes: anthers mostly opening by pores or chinks.*

ORDER LVIII. ERICACEÆ. *R. B.; Endl.* THE HEATH TRIBE.

ERICEÆ & RHODODENDRA, *Juss., DC.* VACCINIEÆ, *DC.* PYROLACEÆ & MONOTROPEÆ, *Nutt.*

Flowers regular, or sometimes slightly irregular. Stamens mostly distinct: anthers 2-celled, often appendaged. Style solitary: stigma capitate or lobed. Seeds usually numerous. — Shrubby plants, or sometimes herbs. Leaves undivided, entire, toothed or serrate.

The pollen, in all the plants of this order that I have examined, is composed (more or less distinctly) of three, or sometimes four, united spherules; as in most EPACRIDACEÆ.

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* CAMPANULA caule simplici, foliis cordatis amplexicaulis, fl. sessilibus . . . . . "*Obs.* Flores plurimi primi corollâ staminibus, stylo stigmatoque destitui, videtur fructibus perficere et semina: reliqui et seriores flores corolla et staminibus perfectis gaudent, uti idem in *Ruellia* videre est." *Linn. hort. Ups. p.* 40.

SUBORDER I. ERICINEÆ. THE HEATH TRIBE *proper*.

Ovary free from the calyx. Fruit capsular, sometimes baccate or drupaceous. Testa closely investing the nucleus of the seed. — Mostly shrubs. Leaves often evergreen. Petals rarely almost or entirely distinct.

CONSPECTUS OF THE TRIBES AND GENERA.

Tribe 1. ARBUTEÆ. Fruit indehiscent, baccate. Corolla deciduous.

1. ARCTOSTAPHYLOS. Cells of the drupaceous berry 1-seeded.

Tribe 2. ANDROMEDEÆ. Fruit capsular, loculicidally dehiscent.

2. CLETHRA. Calyx 5-parted. Petals 5, distinct nearly to the base. Stamens 10. Stigma 3-cleft. Capsule 3-celled, 3-valved.
3. EPIGÆA. Calyx deeply 5-parted. Corolla 5-cleft, salver-form. Stamens 10: anthers opening longitudinally. Capsule 5-celled.
4. GAUTIERA. Calyx 5-lobed, becoming fleshy and baccate, and covering the 5-celled capsule. Corolla ovoid. Stamens 10. Capsule 5-valved.
5. ANDROMEDA. Calyx 5-toothed or 5-lobed, not becoming baccate. Corolla ovoid, cylindrical-oblong or somewhat campanulate, 5-cleft. Stamens 10. Capsule 5-celled.

Tribe 3. RHODOREÆ. Fruit capsular, septicidally dehiscent.

6. RHODODENDRON. Calyx 5-parted, or 5-toothed. Corolla funnel-form or campanulate, more or less irregular, 5-lobed. Stamens 5 – 10.
7. KALMIA. Calyx 5-parted. Corolla salver-form; the border with ten protuberances, in the cavities of which the anthers are lodged. Stamens 10.
8. LEDUM. Calyx 5-toothed. Petals 5, distinct nearly to the base, spreading. Stamens 5 – 10: anthers with two pores at the summit.

TRIBE I. *ARBUTEÆ. DC.*

Fruit indehiscent, baccate. Corolla deciduous. — Evergreen shrubs.

1. ARCTOSTAPHYLOS. *Adans.; Endl. gen.* 4327. *BEAR GRAPE.*

Species of ARBUTUS, *Linn.*

[From the Greek, *arktos*, a bear, and *staphyle*, a grape.]

Calyx 5-parted. Corolla ovate-urceolate; the orifice 5-toothed and revolute. Stamens 10, included: anthers with two pores at the summit, laterally 2-awned; the awns reflexed. Ovary surrounded with 3 fleshy scales. Berry drupaceous, 5-celled; the cells 1-seeded.— Shrubby plants, with alternate mostly persistent entire or denticulate leaves. Racemes terminal, bracteate. Flowers white or red. Fruit red or black.

1. ARCTOSTAPHYLOS UVA-URSI, *Spreng.* *Bear-berry.*

Procumbent, smooth; leaves cuneate-obovate, coriaceous, entire, shining; flowers in small terminal racemes; fruit smooth.—*Spreng. syst.* 2. *p.* 287; *DC. prodr.* 7. *p.* 584. Arbutus Uva-ursi, *Linn. sp.* 1. *p.* 395; *Engl. bot. t.* 714; *Michx. fl.* 1. *p.* 249; *Pursh, fl.* 1. *p.* 283; *Bigel. fl. Bost. p.* 165, *and med. bot. t.* 6; *Torr. fl.* 1. *p.* 411; *Beck, bot. p.* 216; *Hook. fl. Bor.-Am.* 2. *p.* 37 (§ Arctostaphylos).

Root thick, woody, creeping. Stems numerous, trailing and spreading on the ground; the sterile branches often 2 – 3 feet long, the flowering branches shorter. Leaves evergreen, about three-fourths of an inch long, variable in breadth, very thick and rigid, veiny and somewhat reticulated (particularly underneath), spreading or a little recurved; the base narrowed into a short petiole. Flowers drooping; the peduncles bracteolate at the base. Calyx reddish and persistent; the lobes roundish. Corolla rose-color, pellucid at the base, hairy inside, with 5 short acute recurved segments. Stamens included: anthers large. Fruit depressed-globose, about the size of a large pea, red, with a mealy insipid pulp, and containing 5 closely cohering almost bony nuts.

Dry sandy soils, and sometimes on mountains. Abundant in Suffolk county on Long Island, and on Fishkill mountains. Near Troy (*Dr. Wright*); Pine-Plains; near Rome (*Dr. Knieskern*), &c. *Fl.* April – May. *Fr.* July – August. This plant has long been known as a diuretic, astringent and tonic. The leaves are also used for tanning. It is called "Heth" on Long Island, and sometimes "Universe" (a corruption of *Uva-ursi*).

TRIBE II. *ANDROMEDEÆ. DC.*

Fruit capsular, dehiscent loculicidally. Corolla deciduous. — Shrubs, with the leaves often evergreen. Buds usually scaly.

2. CLETHRA. *Gært.; DC. prodr.* 7. *p.* 588; *Endl. gen.* 4320.

SWEET PEPPER-BUSH.

[*Klethra* is the ancient Greek name for Alder, which this plant somewhat resembles in its leaves.]

Calyx deeply 5-parted. Corolla 5-petalled; the petals ovate-oblong, distinct nearly to the base! Stamens 10: anthers inverted and pendulous before flowering, at length erect, acute and mucronate at the base, 2-lobed at the summit; the lobes diverging, opening by a terminal pore. Style straight: stigma 3-cleft. Capsule 3-celled, 3-valved, covered by the calyx. Seeds several in each cell. — Shrubs or trees. Leaves alternate. Flowers in terminal simple or paniculate racemes, white.

1. CLETHRA ALNIFOLIA, *Linn.* *Common Sweet Pepper-bush.*

Leaves cuneate-obovate, acute, coarsely serrate, smooth and green on both sides; racemes spike-like, hoary-tomentose; bracts linear-subulate, rather longer than the pedicels. — *Linn. sp.* 1. *p.* 396; *Lam. ill. t.* 369; *Michx. fl.* 1. *p.* 260; *Pursh, fl.* 1. *p.* 301; *Ell. sk.* 1. *p.* 502; *Bigel. fl. Bost. p.* 172; *Torr. fl.* 1. *p.* 438; *Beck, bot. p.* 218; *Darlingt. fl. Cest. p.* 264; *DC. prodr.* 7. *p.* 588.

A shrub 4 – 8 feet high, with brownish bark and erect branches. Leaves 2 – 3 inches long and 1 – 1½ inch wide, acute or with a short acumination, mucronately serrate; the midrib underneath slightly pubescent: petiole about one-fourth of an inch long. Racemes 3 – 6 inches in length, erect, solitary or sometimes 2 or 3 together. Flowers fragrant; the rachis,

pedicels and calyx clothed with a whitish down. Sepals oblong, obtuse. Petals obovate-spatulate, slightly connected at the base. Stamens exserted: filaments smooth: anthers in the unexpanded flower reflexed on the filament, so that the true base appears to be the summit. Ovary hairy: style rather longer than the stamens. Capsule small, globose, first dehiscing loculicidally, and finally through the dissepiments. Seeds oval, angular, reticulated and rough.

Swamps and wet thickets; southern part of the State, and Long Island. I have not found it north or west of the Highlands. *Fl.* End of July – August. *Fr.* October. A handsome plant, bearing numerous spikes of white sweet-scented flowers. It is known in some places by the name of *White Alder*.

3. EPIGÆA. *Linn.; Swartz, fl. Ind. occ.* 2. *p.* 842; *Endl. gen.* 4322.
GROUND LAUREL.

[From the Greek, *epi*, upon, and *ge*, the earth; in allusion to the prostrate habit.]

Calyx deeply 5-parted, colored, with three bracts at the base; the lobes acuminate. Corolla salver-form, with the limb 5-parted. Stamens 10: anthers opening longitudinally. Capsule depressed-globose, 5-celled, covered with the persistent calyx. Seeds several in each cell. —Suffruticose, trailing or assurgent evergreens. Leaves cordate, entire or serrate. Flowers in short dense axillary and terminal fasciculate racemes, white or rose-color.

1. EPIGÆA REPENS, *Linn.* *Ground Laurel. Trailing Arbutus.*

Stem prostrate, creeping; leaves cordate-ovate, entire; corolla hairy inside. — *Linn. sp.* 1. *p.* 395; *Lam. ill. t.* 367. *f.* 1; *Michx. fl.* 1. *p.* 250; *Bot. repos. t.* 102; *Pursh, fl.* 1. *p.* 297; *Ell. sk.* 1. *p.* 501; *Bigel. fl. Bost. p.* 164; *Torr. fl.* 1. *p.* 428; *Bot. reg. t.* 201; *Beck, bot. p.* 219; *Hook. fl. Bor.-Am.* 2 *p.* 42; *Darlingt. fl. Cest. p.* 259; *DC. prodr.* 7. *p.* 591.

Stem woody, spreading on the ground and rooting at the joints, clothed (as are the petioles) with stiff brownish hairs. Leaves 1 – 2 inches long, more or less cordate at the base, obtuse or with a short mucronate point, sprinkled and fringed with hairs; the petiole half an inch or more in length. Flowers rather large and ornamental, conspicuously bracteate, fragrant. Sepals ovate, acute, smooth. Corolla tubular-salverform, with a somewhat spreading border, rose-color or almost white; the lobes ovate, obtuse, very hairy inside toward the base. Stamens shorter than the corolla: filaments hairy at the base: anthers linear. Style straight: stigma obtusely 5-lobed. Capsule obtusely 5-angled; the placentæ large and 2-lobed. Seeds ovate.

Dry sandy woods, and hill-sides. *Fl.* April – May. *Fr.* July. This plant has acquired some celebrity as a domestic remedy for gravel. It is sold by the Shakers, under the name of *Gravel plant*.

4. GAUTIERA. *Kalm in mem. acad. Par.* 1751. 2. *p.* 378, ex *Endl. gen.* 4323.

PARTRIDGE-BERRY.

GAULTHERIA, *Linn.*, &c.

[In honor of M. GAUTIER, a French physician of Quebec.]

Calyx 5-lobed, becoming fleshy and baccate, and then covering the capsule. Corolla ovoid; the orifice 5-toothed. Stamens 10, included; the filaments hairy: anthers 2-lobed, opening longitudinally on the outside; the horns 2-awned at the summit. Style filiform: stigma undivided, obtuse. Capsule depressed-globose, 5-celled; the cells many-seeded. — Frutescent plants, with alternate evergreen toothed or entire leaves, and the flowers either axillary and solitary, or in terminal racemes.

1. GAUTIERA PROCUMBENS. *Partridge-berry*, or *Tea-berry.*

Smooth; stem procumbent, creeping, with the branches erect and naked below; leaves obovate, cuneate at the base, remotely and setaceously denticulate; pedicels from the axils of the upper leaves, recurved.—Gaultheria procumbens, *Linn. sp.* 1. *p.* 395; *Bot. rep. t.* 116; *Michx. fl.* 1. *p.* 249; *Pursh, fl.* 1. *p.* 283; *Ell. sk.* 1. *p.* 501; *Bigel. fl. Bost. p.* 164, *and med. bot.* 2. *p.* 27. *t.* 22; *Bart. veg. mat. med.* 1. *t.* 15; *Nutt. gen.* 1. *p.* 262; *Torr. fl.* 1. *p.* 412; *Bot. mag. t.* 1966; *Beck, bot. p.* 216; *Darlingt. fl. Cest. p.* 258; *DC. prodr.* 7. *p.* 592.

Stem creeping extensively a little beneath the surface of the ground, throwing up erect branches 3 – 5 inches high. Leaves 3 – 6 toward the summit of each branch, about an inch long, thick and coriaceous, often purplish; the margin slightly revolute, rather remotely serrulate, particularly toward the base; the serratures appressed, and tipped with a short bristle: petiole very short. Pedicels nearly half an inch long, with two roundish bracteoles close to the flower; the segments semiovate and ciliate. Corolla one-third of an inch long, white, obtuse, 5-angled; the teeth of the orifice revolute. Stamens included; filaments rather broad: anthers large; the lobes parallel, with 2 short incurved awns at the summit. Ovary globose, surrounded at the base with a 10-toothed torus: style cylindrical: stigma small, somewhat capitate. Capsule completely enclosed in a large red berry-like calyx. Seeds ovoid, smooth.

Woods and rather dry swamps, particularly in sandy soil; common. *Fl.* May – July. *Fr.* October. The whole plant has an agreeable spicy flavor, somewhat resembling that of Sweet Birch. It yields an essential oil, which is used as a stimulant, cordial and emmenagogue, and is sold under the name of *Oil of wintergreen.* An infusion of the leaves is also used for the same purpose. The berries are edible, and have a pleasant flavor, but are dry. The oil is very remarkable in its chemical composition, having recently been ascertained by M. Cahours to be a *salycilite of the oxide of methyl*, or composed of an acid called the *salycilic* (hitherto only found in the oil of *Spiræa*), united with the ether of wood-spirit (*methylic ether*).

5. ANDROMEDA. *Linn. gen.* 549; *Juss. gen. pl. p.* 160. *ANDROMEDA.*

[Named in allusion to the fable of *Andromeda*, who was chained to a rock, and exposed to the attack of a sea monster: some of the species growing on the rocky sides of mountains.]

Calyx 5-cleft or 5-parted, not becoming fleshy or baccate. Corolla ovate, globose or somewhat campanulate, 5-cleft. Stamens 10. Capsule 5-celled. — Shrubs or small trees of various habit.

§ 1. POLIFOLIA, Buxb. *Calyx 5-cleft: corolla ovoid-globose: anthers with two awns at the summit, opening longitudinally.*

1. ANDROMEDA POLIFOLIA, *Linn.* *Wild Rosemary.*

Leaves linear-lanceolate or linear-revolute on the margin, glaucous underneath. — *Linn. sp.* 1. *p.* 393; *Engl. bot. t.* 713; *Michx. fl.* 1. *p.* 254; *Pursh, fl.* 1. *p.* 291; *Bigel. fl. Bost. p.* 167; *Torr. fl.* 1. *p.* 419; *Beck, bot. p.* 217; *Hook. fl. Bor.-Am.* 2. *p.* 38; *DC. prodr.* 7. *p.* 606.

A slender shrub, about a foot or a foot and a half high, nearly simple. Leaves 1 – 2 inches long and 2 – 3 lines wide, coriaceous, acute, dark green above, bluish white underneath, with a thick and very prominent midrib. Flowers in terminal nodding umbellate fascicles; the pedicels whitish and half an inch long, with ovate bracts at the base. Segments of the calyx triangular, acute. Corolla about 3 lines long, nearly globose, contracted at the mouth, white or pale rose-color. Stamens included: filaments hairy, dilated below: anthers ovate. Style stout: stigma truncate, entire.

Sphagnous swamps; near Albany and Troy; Pine Plains, Rome (*Dr. Knieskern*). Northern part of the State, particularly in Essex county. June – July. A native also of the northern parts of Europe. The leaves are acid, as in some other species of the genus.

§ 2. CASSANDRA, Don. *Calyx 5-parted, bracteolate: corolla ovate-oblong, the orifice contracted and 5-toothed: anthers awnless; the cells elongated, opening by a terminal pore: epicarp of the capsule separating from the endocarp, which splits into five coriaceous carpels.— Leaves scaly, evergreen: flowers solitary, axillary.*

2. ANDROMEDA CALYCULATA, *Linn.* *Leather-leaf. Box-leaved Andromeda.*

Leaves elliptical-oblong, rather obtuse, flat; bracteoles ovate, about half the length of the calyx.—*Linn. sp.* 1. *p.* 394; *Michx. fl.* 1. *p.* 254; *Bot. mag. t.* 1286; *Pursh, fl.* 1. *p.* 291; *Nutt. gen.* 1. *p.* 264; *Ell. sk.* 1. *p.* 485; *Bigel. fl. Bost. p.* 166; *Torr. fl.* 1. *p.* 419; *Beck, bot. p.* 217; *Hook. fl. Bor.-Am.* 2. *p.* 39. Cassandra calyculata, *Don in Edinb. phil. jour. July*, 1834; *DC. prodr.* 7. *p.* 610.

A shrub 2 – 4 feet high, much branched. Leaves about an inch long, coriaceous, covered

on both sides with minute bran-like scales, rusty colored underneath, obscurely denticulate. Flowers solitary on short axillary spreading secund pedicels on the upper part of the branches, forming leafy racemes. Bracteoles ovate, acuminate. Segments of the calyx acute. Corolla about one-third of an inch long, white or tinged with purple. Filaments smooth: anthers slender; the cells tapering, but not awned. Capsule roundish: valves of the epicarp opposite the segments of the calyx, finally separating completely from the endocarp; the carpels of which also separate from each other, and split into two longitudinal valves. Seeds angular.

Swamps; not uncommon, particularly in the northern part of the State. *Fl.* April and May in the southern counties; later in the north. *Fr.* July. This plant is also indigenous to the northern parts of Europe.

§ 3. MARIA, DC. *Calyx deeply 5-parted: corolla ovoid-cylindrical: anthers oblong, awnless; the cells opening by an obliquely truncated orifice. Capsule conical; the sutures thick and prominent, at length separating and forming narrow supernumerary valves. — Leaves deciduous: flowers in umbellate fascicles.*

3. ANDROMEDA MARIANA, *Linn.* *Kill-lamb. Stagger-bush.*

Leaves oval or oblong, rather acute at each end, somewhat coriaceous, entire, smooth above, pale and somewhat pubescent underneath; flowers in umbellate fascicles, on nearly leafless branches; lobes of the calyx foliaceous, lanceolate.—*Linn. sp.* 1. *p.* 393; *Bot. mag. t.* 1579; *Michx. fl.* 1. *p.* 256; *Ell. sk.* 1. *p.* 493; *Torr. fl.* 1. *p.* 419; *Beck, bot. p.* 217; *Darlingt. fl. Cest. p.* 260. Lyonia Mariana, *D. & G. Don.* Leucothoë Mariana, *DC. prodr.* 7. *p.* 602.

A shrub 2 – 3 feet high, with few erect branches, and smooth gray bark sprinkled with minute black dots. Leaves 2 – 3 inches long, often rather obtuse at the summit but always acute at the base, slightly revolute on the margin, sprinkled with minute brownish dots underneath; the petiole 3 – 4 lines long. Flowers large and showy, forming a naked and often elongated compound raceme; the fascicles nearly sessile, 4 – 10-flowered, recurved, about half an inch long. Calyx about two-thirds the length of the corolla, parted nearly to the base; the segments acute. Corolla white or pale rose-color, about half an inch long. Filaments hairy, linear-lanceolate, doubly recurved: anther-cells with a large very oblique terminal orifice. Ovary conical, prominently 5-angled: style shorter than the corolla, tapering: stigma obscurely lobed. Capsule conical and contracted at the apex, somewhat 5-angled; the sutures very prominent and whitish, at length separating from the proper valves. Seeds very numerous, clavate-cuneate, the greater number of them often abortive.

Dry sandy soils; abundant in many places on Long Island, particularly on Hempstead Plains. *Fl.* June – July; sometimes again in the autumn. *Fr.* October. It is supposed to be poisonous to lambs and calves, producing a disease called the *staggers*.

§ 4. EUBOTRYS, Nutt. *Calyx deeply 5-parted, bibracteolate: corolla cylindrical-ovoid; cells of the anther distinct nearly to the base, each 2-awned at the summit, and opening by a terminal pore: capsule depressed-globose; the sutures prominent, but not separating from the valves: seeds . . . . — Leaves deciduous: flowers in secund racemes.*

4. ANDROMEDA RACEMOSA, *Linn.* *Racemed Andromeda.*

Leaves oblong, serrulate, membranaceous, smooth above, slightly pubescent underneath; racemes naked, simple or somewhat compound, secund; segments of the calyx ovate-lanceolate, acute. — *Linn. sp.* 1. *p.* 394; *Michx. fl.* 1. *p.* 255; *Pursh, fl.* 1. *p.* 294; *Ell. sk.* 1. *p.* 492; *Nutt. gen.* 1. *p.* 265; *Bigel. fl. Bost. p.* 167; *Torr. fl.* 1. *p.* 420; *Beck, bot. p.* 217; *Darlingt. fl. Cest. p.* 259. A. paniculata, *Linn. l. c.; Walt. fl. Car. p.* 168; not of *Ait., Michx., &c.* A. spicata, *Wats. dendr. t.* 36. Zenobia racemosa, *DC. prodr.* 7. *p.* 598. Eubotrys racemosa, *Nutt. in trans. Amer. phil. soc.* (n. ser.) 8. *p.* 269.

A shrub 4 – 6 feet high, irregularly branched; the bark of a grayish color. Leaves $1\frac{1}{2}$ – $2\frac{1}{2}$ inches long, acute at each end: petiole about a line long. Racemes numerous, 2 – 4 inches long, terminating short rather spreading branches; the flowers on short pedicels, nodding, sweet-scented. Bracteoles ovate, acuminate. Calyx purplish and red, scarcely one-fourth the length of the corolla; the segments somewhat spreading, finely ciliate. Corolla white, contracted at the mouth; the segments small, and at length revolute. Stamens about half the length of the corolla: filaments smooth: anthers deeply 2-cleft; each lobe or cell terminated by two acute rigid awns. Style cylindrical, exserted: stigma small, undivided. Capsule coriaceous, umbilicate at the summit, dark purplish.

Moist thickets and borders of swamps; in the southern part of the State, and on Long Island. *Fl.* June. *Fr.* August. A handsome species, bearing a profusion of flowers in dense spike-like racemes.

§ 5. LYONIA, Nutt. *Calyx 5-parted: corolla somewhat globose: anthers awnless, opening by terminal pores: capsule globose or ovoid; the sutures thick and convex, at length separating and forming narrow supernumerary valves: seeds oblong; the testa rather loose. — Leaves deciduous or evergreen: flowers small, mostly pubescent, paniculate or in axillary fascicles.*

5. ANDROMEDA LIGUSTRINA, *Muhl.* *Privet Andromeda.*

Leaves obovate-oblong, acuminate, obscurely serrulate, deciduous, minutely pubescent; flower-bearing branches terminal, naked, paniculate; corolla globose. — *Muhl. cat. p.* 44; *Ell. sk.* 1. *p.* 490; *Torr. fl.* 1. *p.* 421; *Beck, bot. p.* 218; *Darlingt. fl. Cest. p.* 260. A. paniculata, *Willd. sp.* 2. *p.* 612; *Michx. fl.* 1. *p.* 254; *Pursh, fl.* 1. *p.* 295; *Bigel. fl. Bost. p.* 167. Vaccinium ligustrinum, *Linn. sp.* 1. *p.* 351. Lyonia paniculata, *Nutt. gen.* 1. *p.* 266; *Don, l. c.; Wats. dendr.* 1. *t.* 37. L. ligustrina, *DC. prodr.* 7. *p.* 599.

A shrub 4 – 8 feet high, much branched, with a grayish bark. Leaves $1\frac{1}{2}$ – 2 inches long,

variable in breadth, at length nearly smooth above, paler and more or less pubescent underneath. Panicles composed of numerous short racemes, naked, or sometimes with one or two small leaves at the base; the pedicels pubescent, often in fascicles, usually without bracts. Flowers scarcely two lines in length, pubescent. Filaments glandularly pubescent: anthers ovate, entire, with two large terminal obliquely truncated pores. Style rather thick, deciduous: stigma small, capitate, entire. Capsule globose, dark brown, with pale ribs at the sutures which at length fall away.

Swamps and moist thickets; common. *Fl.* June – July. *Fr.* September.

TRIBE III. *RHODOREÆ. D. Don.*

Fruit capsular; the dehiscence septicidal. Corolla deciduous. Anthers awnless. — Flower-buds mostly scaly.

6. RHODODENDRON. *Linn.; D. Don in Edinb. phil. jour. 6. p. 49.* ROSE-BAY.

[From the Greek, *rhodon*, a rose, and *dendron*, a tree; in allusion to the color of the flowers.]

Calyx 5-parted. Corolla somewhat funnel-form or campanulate; the limb 5-cleft, and somewhat irregular. Stamens 5 – 10, declined: anthers opening by two terminal pores. Capsule mostly 5-celled. Seeds numerous; the testa loose. — Shrubs or small trees, with alternate, entire, deciduous or evergreen leaves and corymbose flowers.

§ 1. EURHODODENDRON, Endl. *Corolla campanulate: stamens* 10 (*or sometimes* 8).

1. RHODODENDRON MAXIMUM, *Linn.* *Great Laurel.*

Leaves elliptical-oblong, evergreen, acuminate, thick and coriaceous, smooth, paler underneath; corymbs somewhat racemose or thyrsoid, dense; lobes of the calyx ovate-oblong, obtuse. — *Linn. sp.* 1. *p.* 392; *Michx. fl.* 1. *p.* 259; *Bot. mag. t.* 951; *Michx. f. sylv.* 2. *t.* 67; *Pursh, fl.* 1. *p.* 297; *Bigel. fl. Bost. p.* 168, *and med. bot. t.* 51; *Ell. sk.* 1. *p.* 483; *Torr. fl.* 1. *p.* 426; *Beck, bot. p.* 220; *Darlingt. fl. Cest. p.* 263; *DC. prodr.* 7. *p.* 722.

A shrub 6 – 12 feet high (sometimes 20 or 25 feet high, with a diameter of 4 or 5 inches, *Michx.*), with irregular straggling branches and a grayish bark. Leaves in tufts at the extremity of the branches, 4 – 6 inches long and 1 – 1½ inch wide, mostly obtuse at the base, pale and often a little rusty colored underneath, somewhat revolute on the margin; the petioles about an inch in length. Flowers very large and showy, in dense terminal clusters; the pedicels at first short and concealed by large viscidly pubescent acuminate bracts, but finally an inch or more in length. Calyx short, viscid. Corolla campanulate, with a short tube; the lobes oblong, obtuse, rather unequal, rather pale rose-color or sometimes almost white; the upper lobe largest, spotted with orange, and often emarginate. Stamens unequal, the longest rather shorter than the corolla: filaments white, woolly at the base; anthers oblong. Ovary oblong, glutinous: style declinate: stigma somewhat clavate-capitate. Capsule oblong, glandular. Seeds numerous, oblong; the testa rather loose and reticulated.

Swamps, particularly those in which the White Cedar (*Cupressus thuyoides*) abounds; but sometimes in rather dry situations. Near Babylon, &c., Long Island; in the Highlands of New-York; Oriskany swamp (*Dr. Knieskern*). *Fl.* June – July. *Fr.* September. A magnificent shrub, and susceptible of cultivation without much difficulty, especially if removed from dryish soils. I have sometimes found large crystalline grains of white sugar in the flowers.

2. RHODODENDRON LAPPONICUM, *Wahl.* *Procumbent Alpine Rosebay.*

Procumbent and divaricately branched; leaves elliptical, rigid, dotted, and covered with ferruginous minute scales on both sides; peduncles few, terminal, umbellate; stamens 5 – 10; filaments smooth.—*Wahl. fl. Lapp. p.* 104; *Torr. fl.* 1. *p.* 426; *Beck, bot. p.* 220; *Hook. bot. mag. t.* 3106, *and fl. Bor.-Am.* 2. *p.* 43; *DC. prodr.* 7. *p.* 724. Azalea Lapponica, *Linn. fl. Lapp. p.* 89. *t.* 6. *f.* 1, *and sp.* 1. *p.* 151; *Fl. Dan. t.* 966; *Bigel. fl. Bost. p.* 83.

Stem partly subterranean; the numerous rigid straggling branches spreading on the ground, or assurgent, and a few inches high. Leaves mostly crowded toward the summit of the branches, 5 – 8 lines long and 2 – 3 broad, thickly marked on both sides with impressed dots or pits, which are closed (especially on the under surface) with ferruginous deciduous scales. Clusters 3 – 5-flowered; the pedicels and calyx minutely scaly. Corolla deep purple, campanulate, with oblong obtuse lobes. Stamens about as long as the corolla; the filaments purple, smooth, except a little woolliness at the base. Style purple, smooth: stigma capitate, obscurely 5-toothed. Capsule oblong-ovoid. Seeds linear-oblong, acute, with a rather loose testa.

Highest summits of Mount Marcy and Mount McIntyre, Essex county. *Fl.* Early in July. *Fr.* September. This interesting plant grows also on the White Hills of New-Hampshire, and in the northern regions of both hemispheres.

§ 2. PENTANTHERA, D. Don. (*Anthodendron*, Reich. Species of *Azalea*, Linn. and most authors.)
Corolla funnel-form, somewhat irregular: stamens five.— Leaves deciduous.

3. RHODODENDRON NUDIFLORUM, *Torr.* *Upright Wild Honeysuckle.*

Leaves obovate-oblong and obovate-lanceolate; flowers in rather naked corymbs, slightly viscid; tube of the corolla scarcely longer than the lobes; stamens much exserted.— *Torr. fl.* 1. *p.* 424; *Beck, bot. p.* 220; *Darlingt. fl. Cest. p.* 262; *Hook. fl. Bor.-Am.* 2. *p.* 42. Azalea lutea, *Linn. sp.* 1. *p.* 150. A. nudiflora, *Linn. syst.* (ed. 12.) 2. *p.* 154; *Bot. mag. t.* 180; *Bot. cab. t.* 51; *Ell. sk.* 1. *p.* 240; *Bigel. fl. Bost. p.* 82; *DC. prodr.* 7. *p.* 716. A. periclymenoides, *Michx. fl.* 1. *p.* 151; *Pursh, fl.* 1. *p.* 152. A. periclymena, *Pers. syn.* 1. *p.* 213.

A shrub 2 – 6 feet high, much branched towards the summit, with a reddish bark. Leaves crowded toward the extremity of the branches, finely ciliate, a little pubescent above and on

the veins and midrib underneath. Flowers in terminal clusters, about as large as in the common *Woodbine*, usually appearing before the leaves expand, and hence appearing naked: pedicels about one-third of an inch long. Calyx very short and hairy. Corolla rose-color, more or less intense; the lobes ovate-oblong, acuminate: tube hairy. Stamens nearly twice as long as the corolla: filaments pubescent below the middle. Style a little longer than the stamens.

Woods and bushy places; common. *Fl.* April – May. *Fr.* August. A very beautiful shrub, of which there are numerous varieties in cultivation.

4. RHODODENDRON VISCOSUM, *Torr.* (Pl. LXVI.) *White Wild Honeysuckle.*

Branchlets hispid; leaves obovate-oblong, the midrib and petiole bristly; flowers appearing with the leaves, very viscid, the tube nearly twice as long as the segments; stamens slightly exserted. — *Torr. fl.* 1. *p.* 424; *Beck, bot. p.* 221; *Darlingt. fl. Cest. p.* 261; *Hook. fl. Bor.-Am.* 2. *p.* 42. Azalea viscosa, *Linn. sp.* 1. *p.* 151; *Michx. fl.* 1. *p.* 150; *Pursh, fl.* 1. *p.* 153; *Ell. sk.* 1. *p.* 241; *Bigel. fl. Bost. p.* 82; *DC. prodr.* 7. *p.* 715.

A shrub 4 – 7 feet high, with numerous spreading branches and a grayish bark. Leaves 1 – 2 inches long, acute or rather obtuse, cuneate at the base, often glaucous underneath; the margin bristly-ciliolate. Flowers in dense terminal clusters, very fragrant, pubescent and glutinous. Corolla usually white, but sometimes tinged with rose-color; the tube long and slender. Anthers nearly twice as large as in the preceding species.

Bushy moist places, and in woods; not common in the interior of the State, but abundant near New-York and on Long Island. *Fl.* June – July, or sometimes as late as August. *Azalea glauca* of authors is scarcely even a variety of this species.

5. RHODODENDRON HISPIDUM, *Torr.* *Hispid Azalea.*

Flowers appearing with the leaves; branches strict and very hispid; leaves narrowly lanceolate, hispid above, smooth underneath, glaucous on both sides, the midrib bristly, ciliate on the margin; flowers very viscid; tube of the corolla scarcely longer than the broad segments; teeth of the calyx oblong, rounded; filaments exserted (*Pursh*).—*Torr. fl.* 1. *p.* 425; *Beck, bot. p.* 221. Azalea hispida, *Pursh, fl.* 1. *p.* 154; *Wats. dendr. Brit. t.* 6; *DC. prodr.* 7. *p.* 716.

An upright shrub, 10 – 15 feet high, of a bluish appearance. Flowers white with a red border and a tinge of red on the tube, which makes them appear of a rose-color before they open. They have frequently ten stamens (*Pursh*).

Borders of high mountain lakes, New-York to Pennsylvania. July – August (*Pursh*). I have not found this species within the limits of the State. It is scarcely distinct from *R. viscosum*.

§ 3. RHODORA, D. Don. *Limb of the calyx minute, 5-toothed. Corolla bilabiate; the upper lip broader, 2 – 3-parted; lower lip 2-parted. Stamens* 10. — *Leaves deciduous.*

6. RHODODENDRON RHODORA, *G. Don.* *Rhodora.*

Leaves oval, nearly smooth above, pubescent and glaucous underneath; flowers in terminal corymbose fascicles, appearing before the leaves. — *G. Don, gen. syst.* 3. *p.* 848. Rhodora Canadensis, *Linn.; Michx. fl.* 1. *p.* 259; *Lam. ill. t.* 364; *Bot. mag. t.* 474; *Pursh, fl.* 1. *p.* 298; *Bigel. fl. Bost. p.* 172; *Torr. fl.* 1. *p.* 427; *Beck, bot. p.* 220; *DC. prodr.* 7. *p.* 719.

A shrub about two feet high, with erect branches. Leaves membranaceous, softly pubescent and whitish underneath. Flowers about five in a cluster, on short pedicels. Corolla bright purple; the upper lip unequally 2 – 3-lobed, the lower divided into two equal obtuse lobes. Stamens about as long as the corolla: filaments slightly hairy at the base: anthers oblong. Style longer than the stamens. Capsule oblong, pubescent. Seed oblong, with a distinct winged border.

Mountain bogs. I am not quite certain that I have received specimens of this plant from within the limits of the State; but it doubtless grows in some of the northern counties.

7. KALMIA. *Linn.; Lam. ill. t.* 363; *Endl. gen.* 4339. *AMERICAN LAUREL.*

[In honor of PETER KALM, a Swedish botanist and pupil of Linnæus, who travelled in North America about the middle of the last century.]

Calyx 5-parted. Corolla somewhat salver-form or rotate; the border 5-lobed, with ten protuberances on the underside, in the cavities of which the anthers are lodged. Stamens 10: anthers opening by two large oblique pores. Style longer than the stamens: stigma capitate. Capsule globose. Seeds numerous, linear or oblong. — Shrubs, with coriaceous and nearly evergreen entire leaves. Flowers in terminal corymbs, or rarely on solitary and axillary peduncles.

1. KALMIA LATIFOLIA, *Linn.* *Laurel. Calico-bush.*

Branches terete; leaves on long petioles, scattered, ternate-elliptical, acute at each end, green on both sides; corymbs terminal, viscidly pubescent. — *Linn. sp.* 1. *p.* 391; *Bot. mag. t.* 175; *Michx. fl.* 1. *p.* 258, *and f. sylv.* 1. *t.* 68; *Pursh, fl.* 1. *p.* 296; *Bigel. med. bot. t.* 13, *and fl. Bost. p.* 168; *Ell. sk.* 1. *p.* 481; *Torr. fl.* 1. *p.* 22; *Beck, bot. p.* 219; *Darlingt. fl. Cest. p.* 261; *DC. prodr.* 7. *p.* 729.

A shrub 4 – 10 feet high (sometimes 18 – 20, *Michx.*), with crooked irregular branches. Leaves 2 – 3 inches long, coriaceous, very smooth and shining, alternate opposite and ternately disposed on the same plant, evergreen. Flowers in simple or terminal corymbs; the pedicels about an inch long. Calyx glandularly viscid like the pedicels; the segments oblong and

acute. Corolla about an inch in diameter, varying from deep rose-color to almost white, with a short tube and wide spreading border; the under surface marked with ten prominences or short horns, which present corresponding pits or little pockets on the inside. Stamens declinate; filaments smooth: anthers ovate, at first lodged in the pits of the corolla, but at length liberated elastically at different times, by which means the pollen is thrown upon the stigma. Style slender, straight: stigma capitate. Capsule depressed-globose, pubescent, thick and coriaceous. Seeds oblong; the testa rather loose.

Rocky hills and woods; often forming almost impenetrable thickets. I have not observed this plant north of Troy, and it is scarce in the western counties. Dr. Knieskern found it near Oriskany. *Fl.* Latter part of May and June. *Fr.* September. In favorable situations, the stem of this shrub acquires a diameter of 3 or 4 inches. The wood (particularly that of the roots) is hard and very compact, and is sometimes used as a substitute for box. The leaves are said to be poisonous to cattle. A decoction of the plant is a popular remedy for some cutaneous diseases.

2. KALMIA ANGUSTIFOLIA, *Linn.* *Dwarf Laurel. Sheep Laurel.*

Branches terete; leaves petiolate, narrowly elliptical, flat, rather obtuse, nearly smooth on both sides, often slightly ferruginous underneath; corymbs lateral; (flowers small) pedicels and calyx glandular-pubescent.—*Linn. sp.* 1. *p.* 391; *Bot. mag. t.* 331; *Michx. fl.* 1. *p.* 257; *Pursh, fl.* 1. *p.* 296; *Ell. sk.* 1. *p.* 482; *Bigel. fl. Bost. p.* 169; *Torr. fl.* 1. *p.* 422; *Lodd. bot. cab. t.* 502; *Beck, bot. p.* 219; *Darlingt. fl. Cest. p.* 262; *DC. prodr.* 7. *p.* 729.

A shrub 1 – 2 feet high. Leaves evergreen, about an inch long, mostly obtuse but often rather acute; when old, nearly or quite smooth on both sides; but the younger ones slightly pubescent, and a little rusty colored underneath. Flowers in small lateral corymbs, and thus appearing verticillate, scarcely one-third the size of those of the preceding species, and of a much deeper rose-color, but resembling them every way in structure. Segments of the calyx ovate, acute. Capsule depressed-globose, pubescent.

Low grounds; common on Long Island and near New-York, but not often seen in the interior of the State. *Fl.* June – July. *Fr.* September. This plant is believed to kill sheep and other animals. In some places it is called *Sheep-poison, Lamb-kill,* and *Lamb Laurel.*

3. KALMIA GLAUCA, *Ait.* *Swamp Laurel.*

Branches ancipital; leaves opposite, nearly sessile, oblong, lanceolate or linear, smooth, flat or with the margin revolute, glaucous underneath; corymbs terminal; pedicels and calyx very smooth.—*Ait. hort. Kew.* (ed. 1.) 2. *p.* 64. *t.* 8; *Lam. ill. t.* 363. *f.* 2; *Bot. mag. t.* 296; *Lodd. bot. cab. t.* 1508; *Michx. fl.* 1. *p.* 257; *Pursh, fl.* 1. *p.* 296 (*and var.* rosmarinifolia); *Torr. fl.* 1. *p.* 425; *Bigel. fl. Bost. p.* 170; *Beck, bot. p.* 219; *DC. prodr.* 7. *p.* 729. K. polifolia, *Wang. act. nat. Berol.* 8. *p.* 129. *t.* 5.

A shrub 12 – 18 inches high; the branches distinctly ancipital. Leaves 1 – 2 inches long, and varying from nearly half an inch to scarcely a line and a half wide, mostly obtuse, dark green and shining above, whitish and dull underneath, with a very prominent midrib; the

margin (especially in the narrow-leaved forms) often revolute. Pedicels filiform, erect, very smooth, 1 – 1½ inch long, conspicuously bracteate at the base. Calyx whitish tinged with purple; the segments large, ovate, obtuse, concave, ciliolate. Corolla rose-color, larger than in the preceding species. Anthers dark brown. Capsule ovoid-globose, large, thin and coriaceous, very smooth. Seeds linear, with a loose reticulated testa; the nucleus proportionally very small.

Sphagnous swamps; from Hudson and Catskill northward; also in the western part of the State. *Fl.* June – July. *Fr.* September.

8. LEDUM. *Linn.; Endl. gen.* 4344. *LABRADOR TEA.*

[*Ledon* was the Greek name of a plant resembling this genus in its foliage.]

Calyx small, 5-toothed. Corolla 5-petalled, spreading. Stamens 5 – 10; the anthers opening by two terminal pores. Capsule ovoid or oblong, 5-celled, 5-valved. Seeds linear, with a membranaceous wing at each end.—Small evergreen astringent shrubs, somewhat odorous when bruised. Leaves alternate, entire, the under surface clothed with a dense ferruginous wool; with the margins revolute. Flowers white, pedicellate, in terminal umbellate corymbs.

1. LEDUM PALUSTRE, *Linn.* *Labrador Tea.*

Hook. fl. Bor.-Am. 2. *p.* 44. L. latifolium, *Bigel. fl. Bost. p.* 172.

var. 1. *angustifolium:* leaves linear; stamens mostly 10.—*Hook. l. c.* L. palustre, *Linn. sp.* 1. *p.* 591; *Fl. Dan. t.* 1031; *Pursh, fl.* 1. *p.* 30; *Lodd. bot. cab. t.* 560; *Torr. fl.* 1. *p.* 437; *Beck, bot. p.* 222; *DC. prodr.* 7. *p.* 730.

var. 2. *latifolium:* leaves oblong; stamens mostly 5. — *Michx. fl.* 1. *p.* 259; *Hook. l. c.* L. latifolium, *Ait. Kew.* (ed. 1.) 2. *p.* 64; "*Jacq. ic. rar.* 3. *t.* 464;" *Lam. ill. t.* 363; *Pursh, l. c.; Bigel. fl. Bost. p.* 172; *Torr. fl.* 1. *p.* 437; *Beck, bot. p.* 222; *DC. l. c.*

A branching shrub, about 2 feet high. Leaves 1 – 2½ inches wide: in the first var. 2 – 4 lines wide; in the other, from 4 – 8 lines, distinctly revolute on the margin, deep green above, the under surface (as well as the younger branches) clothed with a very dense and soft brown wool; the petiole 2 – 3 lines long. Flowers numerous, in dense corymbose clusters; the pedicels slender and pubescent. Bracts large, obovate, covered with resinous dots. Petals obovate, obtuse. Stamens a little longer than the corolla: in the broad-leaved variety, usually 5, but often 6 or more; in the narrow-leaved form, mostly 10. Style declinate: stigma small, capitate. Capsule oblong, covered with resinous particles.

Sphagnous swamps, from about Hudson northward; frequent (the broad-leaved variety). *Fl.* May – June; and on high mountains, as late as July. *Fr.* August. The narrow-leaved form I have not found within the State, but according to Pursh it grows on the borders of our mountain lakes. I follow Michaux and Hooker in regarding the former as but a variety of the latter. Both are very astringent, and have been used as substitutes for tea, but Dr. Richardson remarks that the narrow-leaved kind is preferable for this purpose.

SUBORDER II. VACCINEÆ. *DC.* THE WHORTLEBERRY TRIBE.

Ovary adhering to the tube of the calyx (very inferior), becoming a berry or drupe-like fruit. — Shrubs, with the leaves often evergreen.

CONSPECTUS OF THE GENERA.

9. VACCINIUM. Calyx 4 – 5-toothed. Corolla urceolate, cylindrical-ovoid or campanulate, 4 – 5-cleft. Stamens 8 – 10. Berry 4 – 5-celled; the cells many-seeded.

10. GAYLUSSACIA. Calyx 5-toothed or 5-cleft. Corolla ovate, urceolate or campanulate, 5-cleft. Stamens 10. Berry drupaceous, containing 10 one-seeded nucules or pyrena.

11. CHIOGENES. Calyx 4-parted, with two ovate bracts at the base. Corolla ovate-campanulate, 4-cleft; the segments short. Stamens 8. Berry 4-celled; the cells many-seeded.

9. VACCINIUM. *Linn.; Selck. handb. t.* 107. *WHORTLEBERRY*, or *HUCKLEBERRY.*

[The true etymology unknown.]

Calyx 4 – 5-toothed. Corolla urceolate, cylindrical, campanulate or somewhat rotate, 4 – 5-toothed or 4 – 5-parted. Stamens 8 – 10: anthers often 2-horned on the back; the cells separate above, each produced into a tubular appendage, and opening by a hole or slit at the summit. Ovary 4 – 5-celled; the cells with numerous ovules, sometimes longitudinally divided into two loculi by a false partition from the back of each cell, and thus becoming spuriously 8 – 10-celled. Berry globose, 4 – 5-celled, many- (or by abortion few-) seeded. Seeds oval; the testa crustaceous, reticulate-pitted, closely investing the nucleus. — Shrubby plants, with alternate leaves. Flowers solitary and axillary, fasciculate or racemose. Berries edible, mostly dark blue or black (sometimes red).

§ 1. *Ovary 4 – 5-celled; the back of the cells not introflexed: corolla urceolate, ovoid, cylindraceous or globose: anthers 2-awned on the back: flowers solitary and axillary or fasciculate, developed simultaneously with the deciduous leaves: seeds angular, not pitted.*

1. VACCINIUM ULIGINOSUM, *Linn.* *Alpine Bilberry.*

Leaves obovate (small), entire, smooth above, veiny and glaucous underneath; flowers nearly solitary, or several together and fasciculate, mostly octandrous; corolla urceolate-ovoid, 4 – 5-toothed; anthers awned on the back.—*Linn. sp.* 1. *p.* 350; *Engl. bot. t.* 581; *Michx. fl.* 1. *p.* 235; *Pursh, fl.* 1. *p.* 288; *Torr. fl.* 1. *p.* 417; *Beck, bot. p.* 224; *Hook. fl. Bor.-Am.* 2 *p.* 32; *DC. prodr.* 7. *p.* 574. V. uliginosum, *var.* alpinum, *Bigel. fl. Bost. p.* 153. V. gaultherioides, *Bigel. in New-Engl. med. jour.* 5. *p.* 335. V. pubescens, *Wormsk. in Hornem. fl. Dan.*

Stem procumbent, with numerous erect branches, 6 – 12 inches high. Leaves 6 – 8 lines long, somewhat glaucous, particularly underneath; the veins prominent and reticulated.

Flowers nearly sessile, often solitary, but in luxuriant specimens fasciculate. Calyx 4 – 5-toothed. Corolla small, pale rose-color, with 4 – 5 revolute teeth. Stamens 8, sometimes 10, included: anthers with 2 long ascending horns arising from the middle of the back. Berries deep blue; the tubular appendages very short.

Clefts of rocks along the sources of the Hudson, in the mountains of Essex county. *Fl.* July. It is found also on the White Hills, and in the northern parts of both hemispheres.

§ 2. *Ovary 5-celled; the back of the cells more or less introflexed: corolla urceolate or ovoid-cylindrical: anthers not awned on the back: flowers in short racemes or fasciculate, often appearing before the leaves: seeds oval, compressed, reticulate-pitted.*

2. VACCINIUM VACCILLANS, *Kalm.* *Low Blue Huckleberry.*

Branches angular (greenish), smooth; leaves oval, elliptical or obovate, serrulate, dull, smooth on both sides, acute or rather obtuse, mucronulate; racemes very short, clustered; corolla campanulate-cylindraceous. — *Kalm, mss. in Herb. Banks.* V. Pennsylvanicum, *Torr. fl.* 1. *p.* 416 (in part). V. virgatum, *Bigel. fl. Bost. p.* 152.

Stem 1½ – 2 feet high, much branched; the branches of a dull greenish color, and either smooth or very slightly roughened with minute warts. Leaves deciduous, 1 – 1½ inch long, rather obscurely serrulate; the serratures more distinct towards the apex, and there sometimes mucronulate. Racemes usually appearing before the leaves are more than half expanded, arising from scaly buds distinct from those of the leaves; the pedicels shorter than the flowers, smooth. Calyx smooth, greenish or reddish; the segments short and rather acute. Corolla about 3 lines long, rather open, greenish white and often tinged with red. Stamens included: anther-lobes with long tubular appendages, which are very obliquely truncated or slit on one side. Ovary smooth; the false dissepiment of each cell extending nearly to the placenta: style often a little exserted: stigma capitate. Berries dark blue, glaucous, very sweet and well flavored.

Open woods and thickets; common in the vicinity of New-York, and along the Hudson, but rare in the western and northern counties. Near Oriskany, Dr. Knieskern found a var. with small lanceolate-elliptical leaves. *Fl.* May. *Fr.* July. This species has probably been confounded by most of our botanists with the following. They are both known by the name of *Sugar Huckleberry*, in some parts of the country.

3. VACCINIUM PENNSYLVANICUM, *Lam.* *Dwarf Blue Huckleberry.*

Branches verrucose, smooth (greenish), somewhat angular; leaves ovate-lanceolate or elliptical-lanceolate, acute at each end, glandularly mucronate, conspicuously serrulate with ciliate-mucronate serratures, smooth and shining on both sides, prominently veined; racemes short and clustered; corolla cylindraceous-campanulate.—*Lam. dict.* 1. *p.* 72; *Michx. fl.* 1. *p.* 223; *Hook. fl. Bor.-Am.* 2. *p.* 32, *and bot. mag. t.* 3434; *Darlingt. fl. Cest. p.* 257;

"*Guimp. abbild. holtz. p.* 40. *t.* 34;" *DC. prodr.* 7. *p.* 572. V. virgatum, *Ait. Kew.* (ed. 1.) 2. *p.* 12. V. tenellum, *Pursh, fl.* 1. *p.* 288 (not of *Ait.*); *Bigel. fl. Bost. p.* 150; *Torr. fl.* 1. *p.* 417; *Wats. dendr. Brit. t.* 35.

var. β.: leaves nearly dull; the midrib hairy underneath; serratures more conspicuously serrulate-mucronate; flowers larger and more campanulate.

Stem 6 – 15 inches high; the branchlets somewhat pubescent in lines. Leaves about an inch long (often considerably smaller on high mountains), prominently and reticulately veined; the serratures evident to the naked eye, incurved and tipped with a short bristle. Racemes few-flowered, short; the bracts and bracteoles reddish, very deciduous. Calyx with conspicuous somewhat acuminate teeth. Corolla reddish white. Stamens as in the preceding species. Style often a little exserted. Berries large, bluish black and covered with a glaucous bloom, sweet and agreeably tasted.

Dry sandy woods, hill-sides and high mountains; the var. on hills about Fishkill. *Fl.* Early in May. *Fr.* Middle of June – July. This is our earliest *Huckleberry*, and is brought in large quantities to the New-York market, mixed with the berries of the preceding and other species.

4. VACCINIUM CORYMBOSUM, *Linn.* *Tall Swamp Huckleberry.*

Branches terete (brownish), smooth, very minutely verrucose, the flowering ones nearly leafless; leaves oval or somewhat obovate, rather acute at each end, perfectly entire, mostly pubescent on the veins when young, at length nearly or quite smooth; racemes clustered, short and often corymbose; corolla cylindraceous-ovoid.—*Linn. sp.* 1. *p.* 350; *Pursh, fl.* 1. *p.* 286; *Ell. sk.* 1. *p.* 498; *Bigel. fl. Bost. p.* 150; *Torr. fl.* 1. *p.* 416; *Beck, bot. p.* 224; *Darlingt. fl. Cest. p.* 256; *DC. prodr.* 7. *p.* 571. V. disomorphum, *Michx. fl.* 1. *p.* 231. V. fuscatum, *Ait. Kew.* (ed. 1.) 2. *p.* 11; *Pursh, l. c.; DC. l. c.*

Stem 5 – 8 feet or more in height, sometimes nearly 2 inches in diameter at the base, with irregular straggling branches; the small twigs usually light purplish and slightly pubescent. Leaves 1½ – 2 inches long, sometimes obovate and obtuse, distinctly mucronate, rather coriaceous when old. Racemes approximated towards the extremity of the branches, 4 – 8-flowered, sometimes slightly elongated; the bracts and bracteoles very deciduous, and of a reddish purple color: pedicels shorter than the flower. Calyx-segments broad, acute or obtuse, spreading. Corolla about 5 lines long, white, only slightly contracted at the mouth. Anther-cells with long tubular appendages, which are slit at the extremity, and somewhat open. Style a little exserted. Berry nearly one-third of an inch in diameter, dark blue and covered with a bloom, subacid and well flavored.

Swamps and shady wet woods; common. *Fl.* May. *Fr.* July – August. This is our most esteemed Huckleberry. It is known by the name of *Bilberry*, or *Blue Bilberry*, in some parts of the country.

5. VACCINIUM CANADENSE, *Kalm.* *Black Bilberry.*

Leaves oblong-lanceolate or oblong-oval, perfectly entire, clothed (as well as the branches) with a soft whitish pubescence, acute; racemes clustered, very short; corolla ovate-campanulate. — *Kalm in herb. Banks; Richards. appx. Frankl. journ. ed.* 2. *p.* 2; *Hook. fl. Bor.-Am.* 2. *p.* 32, *and bot. mag. t.* 3446; *DC. prodr.* 7. *p.* 572. V. dissomorphum, *Bigel. fl. Bost. p.* 151? not of *Michx.*

A shrub 1 – 2½ feet high, much branched; the bark of the twigs of a greenish color, and slightly warty. Leaves 1 – 1½ inch long, thin, dull. Racemes numerous, few-flowered. Corolla short, white tinged with red, about as large as in *V. Pennsylvanicum.* Berries bluish black, sweet and palatable.

Swamps in the western part of the State. *Fl.* May – June. *Fr.* July. This species is probably not uncommon; being often confounded with the preceding, the dwarf pubescent forms of which it much resembles.

§ 3. PICROCOCCUS, Nutt. *Ovary 5-celled; the cells divided longitudinally into two, by the deep introflexion of the dorsal suture: corolla spreading-campanulate: anthers 2-awned on the back: flowers solitary and axillary, on slender lateral branches, and appearing as if in leafy racemes: cells of the berry few-seeded: leaves deciduous.*

6. VACCINIUM STAMINEUM, *Linn.* *Deer-berry. Squaw Huckleberry.*

Leaves oval or ovate, acute, entire, pale and glaucous underneath; flowers on slender lateral branches resembling leafy racemes; the pedicels solitary and axillary, filiform, nodding; corolla spreading-campanulate, with rather obtuse lobes; anthers much exserted, with two awns on the back, the lobes tubular and slender. — *Linn. sp.* 1. *p.* 350; *Ait. Kew.* (ed. 1.) 2. *p.* 10; *Michx. fl.* 1. *p.* 227; *Bot. repos. t.* 263; *Pursh, fl.* 1. *p.* 284; *Ell. sk.* 1. *p.* 496; *Torr. fl.* 1. *p.* 414; *Bigel. fl. Bost. p.* 153; *Beck, bot. p.* 223; *Darlingt. fl. Cest. p.* 255; *DC. prodr.* 7. *p.* 567. Picrococcus stamineus, *Nutt. in trans. Amer. phil. soc.* (n. ser.) 8. *p.* 262.

A shrub 2 – 3 feet high, diffusely branched; the branches terete, of a greenish color, and, when young, pubescent. Leaves about an inch and a half long, mostly obtuse at the base, pubescent underneath and ciliate when young, finally almost smooth on both sides. Pedicels about half an inch long, pubescent. Calyx with short acute segments. Corolla white, and widely spreading. Stamens erect: anthers slender, with two spreading subulate horns on the back; the long tubular lobes perforated, and 2-toothed at the summit. Berry large, globose, often somewhat pyriform from the base being a little produced, usually greenish but sometimes purplish, of a bitterish and somewhat astringent taste, but not unpleasant when fully ripe: the cells divided almost completely into two cavities by a process or introflexion of the dorsal suture; each half-cell 2 – 3-seeded. Seeds rather large, compressed.

Woods, and on rocky hills; common in the valley of the Hudson; rare in the western counties. *Fl.* Latter part of May – June. *Fr.* September. *V. album*, Pursh and authors

(*V. elevatum*, Banks, DC., not *V. album*, Linn.*), seems to be scarcely even a variety of this species, as was long ago remarked by Sir J. E. Smith.

§ 4. OXYCOCCUS, Tourn. (*Cranberry* or *Craneberry.*) *Corolla 4-parted, with linear revolute segments. Stamens* 8: *anther-cells elongated and tubular, not awned on the back. Berry* (*large, red and acid*) 4-*celled.—Stems creeping and filiform, with ascending branches: leaves evergreen, oval or oblong, with margins more or less revolute: flowers bright rose-color, nodding, on slender pedicels.*

7. VACCINIUM OXYCOCCUS, *Linn.* *Small Cranberry.*

Stems very slender; leaves ovate, acute; peduncles terminal; filaments more than half the length of the anthers. — *Linn. sp.* 1. *p.* 351; *Engl. bot. t.* 319; *Fl. Dan. t.* 80; *Hook. fl. Bor-Am.* 2. *p.* 34. V. Oxycoccus, *var.* ovalifolius, *Michx. fl.* 1. *p.* 228. Oxycoccus palustris, *Pers. syn.* 1. *p.* 419. O. vulgaris, *Pursh, fl.* 1. *p.* 263; *Torr. fl.* 1. *p.* 394; *Beck, bot. p.* 225; *DC. prodr.* 7. *p.* 577.

Stems straggling and rooting, 8 – 10 inches long; the young shoots a little pubescent. Leaves 3 – 4 lines long, glaucous underneath, a little revolute on the margin; the veins underneath very indistinct. Pedicels 2 – 4, an inch or more in length, from the summit of the branches, 1-flowered, slender, pubescent, recurved at the extremity, often furnished with linear or narrowly lanceolate bracteoles about the middle. Corolla 4-parted nearly to the base; the segments rolled back. Stamens erect: filaments short, pubescent at the sides: anthers elongated; the two cells produced into slender tubes. Berry about one-third of an inch in diameter, globose, purplish scarlet, very acid.

Sphagnous swamps in the northern and western parts of the State, where it often takes the place of the following species. *Fl.* June. *Fr.* Aug. – September. This agrees in every respect with the European plant. It is preferred for tarts to the Common or American Cranberry.

8. VACCINIUM MACROCARPON, *Ait.* *Common Cranberry.*

Branches ascending; leaves oblong, obtuse; peduncles lateral, from the base of the young shoots; filaments scarcely one-third the length of the anthers.— *Ait. Kew.* (ed. 1.) 2. *p.* 13. *t.* 7; *Bot. mag. t.* 25; *Bigel. fl. Bost. p.* 154; *Hook. fl. Bor.-Am.* 2. *p.* 34. V. Oxycoccus, *var.* oblongifolium, *Michx. fl.* 1. *p.* 228. Oxycoccus macrocarpus, *Pers. syn.* 1. *p.* 419; *Pursh, fl.* 1. *p.* 263; *Bart. fl. Am.Sept.* 1. *t.* 17; *Torr. fl.* 1. *p.* 293; *Wats. dendr. Brit. t.* 122; *Beck, bot. p.* 225; *Darlingt. fl. Cest. p.* 241; *DC. prodr.* 7. *p.* 577.

Stem stouter than in the preceding species, often 2 – 4 feet long, creeping and branching, throwing up numerous assurgent branches from 3 to 8 inches high. Leaves about half an inch long, entire or with distant obscure serratures, nearly plane, smooth, glaucous underneath; the young pubescent-ciliate at the apex, and rather distinctly veined. Calyx small, purplish; the teeth broad and rather acute. Corolla as in the preceding species, but larger; the lobes reflexed, and at length revolute. Filaments purple, short and compressed; the anthers ter-

* *V. album*, Linn., according to Smith and G. Don (*gen. syst. gard.* 3. *p.* 853), and Boott, is *Xylosteum* (*Lonicera*) *ciliatum*, Pursh.

minating in two long slender tubes. Berry globose, oblong or ovoid, half an inch in diameter, bright scarlet, of an agreeable acid taste, persistent during part of the winter.

Sphagnous swamps; not uncommon in many parts of the State. *Fl.* June. *Fr.* October – November. The berries of this plant are too well known to require a particular description.

10. GAYLUSSACIA. *H. B. & K. nov. gen. & sp.* 3. *p.* 275. *t.* 257; *Cham. & Schlecht. in Linnæa*, 1. *p.* 528; *Endl. gen.* 4329. *FALSE HUCKLEBERRY.*

LUSSACIA, *Spreng.* DECACHÆNA, *Torr. & Gr. in Sill. jour.* 42. *p.* 43. note (1841). DECAMERIUM, *Nutt.* 1843.

[Named in honor of the distinguished French chemist GAY-LUSSAC, whose analytical researches have rendered essential aid to Botany.]

Calyx adherent to the ovary, 5-toothed. Corolla cylindrical, ovoid, subglobose or campanulate, 5-cleft or 5-toothed. Stamens 10: anthers unawned; the cells produced at the apex into a tubular appendage. Ovary 10-celled, with a single suspended ovule from the summit of each cell. Fruit a berry-like globose drupe, 10-celled; the nucules separating at maturity. Endocarp crustaceous. Embryo slender, cylindrical.— Shrubs with the habit VACCINIUM. Leaves often sprinkled with resinous dots. Flowers in lateral racemes, bracteate; the bracts sometimes leafy. Corolla purplish scarlet, greenish or white. Fruit dark blue or black.

The North American species of this genus have altogether the aspect of VACCINIUM, but differ in the fruit, as shown by Dr. Gray in the paper quoted above. It was proposed to constitute of them a separate genus under the name of DECACHÆNA (subsequently named DECAMERIUM by Mr. Nuttall); but we now refer them to GAYLUSSACIA, from which they do not differ essentially. In appearance and taste the fruit resembles that of the common Vacciniums, but is not so much esteemed on account of the large crustaceous nucules.

1. GAYLUSSACIA HIRTELLA, *T. & Gr.* (Pl. lxvii.) *Dwarf Swamp Huckleberry.*

Minutely pubescent; leaves obovate-oblong and oblanceolate, mucronate, entire, shining when old, with a short sparse glandular pubescence above, and sprinkled with resinous dots underneath; racemes with large foliaceous bracts, the pedicels 1 – 3-bracteolate; corolla campanulate; fruit somewhat depressed-globose (black), pubescent (*Torr. & Gr. fl. N. Am.* 2. *p.* ined.). — Vaccinium hirtellum, *Ait. Kew.* (ed. 2.) 2. *p.* 357; *Bigel. fl. Bost. p.* 151; *DC. prodr.* 7. *p.* 566. V. dumosum, *Andr. bot. rep. t.* 112; *Curt. bot. mag. t.* 1106; *Pursh, fl.* 1. *p.* 285; *Ell. sk.* 1. *p.* 497; *Wats. dendr. Brit. t.* 32; *Torr. fl.* 1. *p.* 414; *Beck, bot. p.* 223; *DC. l c.* Decamerium dumosum *and* hirtellum, *Nutt. l. c. p.* 260.

A shrub about one foot high, with a long creeping root or rhizoma, somewhat naked below, branching above; the younger branches pubescent, and more or less glandular. Leaves 1 – 2 inches long, deciduous, rather thick when old, veiny. Racemes 2 – 3 inches long; the flowers few and distant; bracts resembling the leaves, but smaller. Calyx glandular; the segments triangular, acute. Corolla large, white, 5-angled, smooth; the segments short and a little recurved. Stamens shorter than the corolla: filaments pubescent: anthers with long tubular appendages. Style long and slender. Fruit black and shining when ripe, glandularly pubescent, watery and rather insipid.

Borders of ponds, and in wet sandy soils. *Fl.* June. *Fr.* August.

2. GAYLUSSACIA FRONDOSA, *Torr. & Gr. ined.* *Blue-tangle. Dangle-berry.*

Smooth; leaves obovate-oblong, obtuse, entire, dull, the under surface glaucous, sprinkled with resinous dots, and often pubescent; racemes loose, the bracts small, lanceolate; pedicels slender; corolla globose-campanulate; fruit (dark blue) glaucous. — Vaccinium frondosum, *Linn. sp.* 1. *p.* 351; *Andr. bot. repos. t.* 140; *Pursh, fl.* 1. *p.* 285; *Ell. sk.* 1. *p.* 497; *Torr. fl.* 1. *p.* 415; *Bigel. fl. Bost. p.* 152; *Beck, bot. p.* 223; *Darlingt. fl. Cest. p.* 256; *DC. prodr.* 7. *p.* 566. V. venustum, *Ait. Kew.* (ed. 1.) 2. *p.* 11. V. glaucum, *Michx. fl.* 1. *p.* 231. V. decamerocarpum, *Dunal in DC. l. c.*, excl. syn. *Wang.* Decamerium frondosum, *Nutt. l. c. p.* 260.

A shrub 3 – 5 feet high, with numerous slender spreading branches, and bark of a grayish color. Leaves about 2 inches long, smooth above, prominently veined underneath. Racemes lateral, few-flowered; the rachis, pedicels and calyx dotted with resinous particles. Bracts deciduous Pedicels 6 – 8 lines long. Calyx smooth. Corolla greenish white, often tinged with purple. Stamens included: filaments much shorter than the anthers, smooth: anther-cells terminating in subulate tubular processes, which are truncated very obliquely. Style slender: stigma small, capitate. Fruit large, globose, sweet and well-flavored.

Moist woods, often in sandy soils; common in the southern part of the State and on Long Island, but rare in the interior. *Fl.* May – June. *Fr.* July – August.

3. GAYLUSSACIA RESINOSA, *Torr. & Gr. ined.* *Black Huckleberry.*

Younger branches slightly pubescent; leaves oval or oblong, mostly obtuse, entire, thickly covered on both sides with resinous dots; racemes short, secund; bracts and bracteoles small, deciduous; corolla ovoid-conical, pentangular, the orifice at first contracted, at length open; fruit (black) shining.—Vaccinium resinosum, *Ait. Kew.* (ed. 1.) 2. *p.* 12; *Mich. fl.* 1. *p* 230; *Bot. mag. t.* 1288; *Pursh, fl.* 1. *p.* 286; *Ell. sk.* 1. *p.* 498; *Bigel. fl. Bost. p.* 150; *Torr. fl.* 1. *p.* 415; *Hook. fl. Bor.-Am.* 2. *p.* 31; *Beck, bot. p.* 223; *Darlingt. fl. Cest. p.* 256; *DC. prodr.* 7. *p.* 566. V. parviflorum, *Andr. bot. repos. t.* 125. Andromeda baccata, *Wang. Amer. p.* 111. *t.* 30. *f.* 69. Decamerium resinosum, *Nutt. l. c.*

A shrub about two feet high, with numerous grayish branches. Leaves 1 – 2½ inches long, sometimes rather acute, thin, yellowish green when young, of a shining appearance from the copious resinous dots. Racemes somewhat clustered, about an inch long, 6 – 10-flowered: pedicels 3 – 4 lines long; the bracts and bracteoles oblong or lanceolate, reddish. Segments of the calyx rather obtuse. Corolla reddish tinged with green. Stamens about two-thirds the length of the corolla: filaments villous on the margin: anthers as long as the filaments; the cells tapering to a sharp point, opening by a long slit. Fruit slightly acid, but agreeable.

Woods and low grounds; very common. *Fl.* May – June. *Fr.* July – August. The resinous matter on the leaves and flowers is more copious than in the other species of the genus: in the young plant, it is quite viscid.

11. CHIOGENES. *Salisb. in trans. hort. soc. Lond.* 2. *p.* 94. *CREEPING SNOWBERRY.*

GLYCIPHYLLA, *Raf.* LASIERPA, *Torr.* PHALEROCARPUS, *G. Don.*

[From the Greek, *chion*, snow, and *gennao*, I generate; in allusion to the snow-white berries.]

Calyx adherent to the lower half of the ovary, with two ovate connate bracteoles at the base; the limb 4-cleft. Corolla campanulate, 4-lobed. Stamens 8, included: filaments short and dilated: anthers of two oblong cells, not produced into tubular appendages nor awned on the back, each bicuspidate at the summit and opening by a large oblique aperture. Ovary globose, surrounded with an 8-toothed disk, 4-celled; the cells many-ovuled: style short: stigma small, simple. Berry globose-ovoid, rather dry (white), crowned with the teeth of the calyx, 4-celled; the cells many-seeded. Seeds roundish-ovoid, compressed. — Stems creeping, filiform; the branches strigose-hispid. Leaves evergreen, roundish-ovate, acute, with slightly revolute margins, smooth above, sparsely hispid. Flowers solitary, axillary, white, on short recurved pedicels.

1. CHIOGENES HISPIDULA, *Torr. & Gr. ined.* (Pl. lxviii.) *Creeping Snowberry.*

C. serpyllifolia, *Salisb. l. c.* Vaccinium hispidulum, *Linn. sp.* 1. *p.* 352 (excl. syn.); *Michx. fl.* 1. *p.* 228. *t.* 23. Arbutus filiformis, *Lam. dict.* 1. *p.* 228. A. thymifolia, *Ait. Kew.* (ed. 1.) 2. *p.* 72. Oxycoccus hispidulus, *Pers. syn.* 1. *p.* 419; *Nutt. gen.* 1. *p.* 251. Gaultheria serpyllifolia, *Pursh, fl.* 1. *p.* 283. *t.* 13 (bad). G. hispidula, *Muhl. cat. p.* 44; *Torr. fl.* 1. *p.* 413 (*subgen.* Lasierpa); *Bigel. fl. Bost. p.* 165; *Beck, bot. p.* 216; *Hook. fl. Bor.-Am.* 2. *p.* 36. Phalerocarpus serpyllifolia, *G. Don, gen. syst.* 3. *p.* 841; *DC. prodr.* 7. *p.* 577. Lasierpa hispidula, *Torr. in Geol report of N. York*, 1840, *p.* 152.

Stems much branched; the branches clothed with short appressed ferruginous bristly hairs. Leaves 3 – 5 lines long, coriaceous, sprinkled underneath and on the margin with short brownish hairs. Flowers scattered, small. Bracts resembling an exterior calyx of 2 sepals, acute. Calyx greenish white, somewhat hispid; the segments broad and acute. Corolla a little larger than the calyx; the segments acute. Stamens included; the filaments roughish: anther-lobes acuminate, with two short and often unequal awns at the tip. Ovary free from the calyx above the middle, but in fruit adherent nearly to the summit, its free portion surrounded at the base with a disk of eight small obtuse teeth; the cells without a false partition from the back; the numerous ovules attached to oblong slightly projecting placentæ. Berry about one-fourth of an inch long, white, with a few short ferruginous hairs like those on the leaves, sweetish and faintly aromatic, deciduous; the dissepiments breaking away from the axis at maturity. Testa of the seed crustaceous, closely investing the nucleus. Embryo small and linear; the cotyledons short.

Sphagnous swamps, particularly on mountains, and under the shade of evergreen trees; common in the northern part of the State. Oriskany, &c. (*Dr. Knieskern*). I have not found

it in the valley of the river below Hudson. *Fl.* May – June. *Fr.* August. The whole plant has an aromatic taste not unlike that of *Gautiera procumbens*, or the bark of *Betula lenta*. The fruit often seems to ripen its seeds without becoming succulent, or acquiring the full size, in which case the upper part of the ovary remains free. In habit this genus agrees with PERNETTYIA, but differs in its tetramerous flowers, and in having the calyx (at least in fruit) adherent. It is distinguished from VACCINIUM (the sect. *Vitis Idæa* of which it pretty nearly approaches, particularly *V. myrtifolium*) chiefly by the 8-toothed disk, the want of tubular appendages to the anthers, and the habit. I have never seen the flowers of the form represented by Pursh in the plate quoted above.

SUBORDER III. PYROLACEÆ. *Lindl.* THE WINTERGREEN TRIBE.

Petals distinct, or only slightly united at the base. Ovary free from the calyx, 3 – 5-celled. Fruit a capsule, opening by chinks at the sutures; but the valves not separating from the axis. Seeds very numerous, minute; the testa very loose and cellular, not conformed to the nucleus. — Low herbaceous or suffrutescent mostly perennial plants.

12. PYROLA. *Linn.* (*excl. sp.*); *Endl. gen.* 4349. *WINTERGREEN.*

[Named from the Latin, *pyrus*, a pear; because the leaves somewhat resemble those of the *Pear-tree.*]

Calyx 5-cleft or 5-parted. Petals 5. Stamens 10, erect or ascending: anthers with two pores at the base, inverted after flowering (when the pores appear to be terminal). Ovary globose, 5-celled. Style filiform, erect or declined: stigma with five tubercles or five rays. Capsule 5-celled.— Perennial herbaceous plants, with creeping rhizomas. Leaves mostly radical, petiolate, ovate or orbicular. Peduncles scape-like. Flowers in a simple raceme, rarely solitary, white or rose-colored, usually fragrant: pedicels nodding.

The anthers are, strictly speaking, inverted *before* flowering, and become erect after the corolla expands; the true apex being the perforated extremity.

§ 1. PYROLA proper. *Peduncles racemose: sutures of the capsule woolly.*

* *Stamens ascending: style declined; stigma annulate.*

1. PYROLA ROTUNDIFOLIA, *Linn.* *Round-leaved Wintergreen.*

Leaves nearly orbicular, coriaceous, shining, obscurely crenate-serrate, mostly shorter than the petiole, conspicuously reticulate; scape many-flowered, bracteate; calyx nearly one-

third the length of the petals (5-parted); segments ovate-lanceolate; corolla spreading; stigma with 5 erect obtuse lobes.—*Linn. sp.* 1. *p.* 396; *Engl. bot. t.* 213; *Fl. Dan. t.* 1816; *Michx. fl.* 1. *p.* 251; *Pursh, fl.* 1. *p.* 299; *Torr. fl.* 1. *p.* 432; *Bigel. fl. Bost. p.* 173; *Beck, bot. p.* 226; *Darlingt. fl. Cest. p.* 265; *Hook. fl. Bor.-Am.* 2. *p.* 46; *DC. prodr.* 7. *p.* 772.

var. *asarifolia:* leaves larger, reniform-roundish. *Hook. l. c.* P. asarifolia, *Michx. l. c.; Pursh, l. c.; DC. l. c.* excl. syn. *Torr., Bigel. & Nutt.*

Rhizoma long and horizontal. Leaves all radical; the lamina $1\frac{1}{2}$ – 2 inches long and of nearly the same diameter (in the var. *asarifolia*, broader than long), deep green, often spreading, or lying flat on the ground: petiole margined. Scape 8 – 12 inches high, angular, furnished with several lanceolate scales instead of leaves, 8 – 20-flowered; the flowers about three-fourths of an inch in diameter, fragrant. Segments of the calyx rather acute, a little reflexed at the tip. Petals white, or sometimes with a slight rosaceous tinge, obovate-oblong, obtuse. Stamens shorter than the corolla: filaments smooth: anthers oblong; the lobes completely 2-celled, even when old. Style rather longer than the corolla: stigma with a ring or minute collar near the extremity; the disk with 5 little teeth or lobes. Capsule depressed-globose, obtusely 5-angled; the valves connected on the margin by fine woolly hairs. Seeds very minute, tapering at each end; the nucleus much smaller than the loose translucent testa.

Rich woodlands; not rare. *Fl.* Early in July. This species is also a native of Europe. Like the following it is a very ornamental plant, and its flowers are highly fragrant. I follow Hooker, without hesitation, in referring here the *P. asarifolia* of Michaux. In the herbarium of this latter botanist, *P. rotundifolia* is mixed with *P. elliptica*.

2. PYROLA ELLIPTICA, *Nutt.* *Shin-leaf.*

Leaves elliptical-ovate, plicate-serrulate, membranaceous, dull, longer than the petiole; scape many-flowered, naked or with a single subulate bract; calyx 5-cleft, scarcely one-fifth the length of the corolla, the segments ovate; stigma with 5 obscure teeth — *Nutt. gen.* 1. *p.* 273; *Torr. fl.* 1. *p.* 433; *Radd. mon. Pyrol. p.* 31. *t.* 5. *f.* 1; *Beck, bot. p.* 226; *Darlingt. fl. Cest. p.* 265; *Hook. fl. Bor.-Am.* 2. *p.* 46. *t.* 134; *DC. prodr.* 7. *p.* 773.

Leaves all radical, sometimes oblong or inclining to obovate, obtuse or somewhat acute, abruptly decurrent on the petiole. Scape 6 – 10 inches high, about 5-angled, with rarely more than a solitary bract, which is situated near the summit. Raceme 8 – 15-flowered; the flowers very sweet-scented. Teeth of the calyx broad, acuminate. Petals obovate, obtuse, white. Stamens, style and capsule nearly as in the preceding species.

Rich fertile woods; common. *Fl.* June. This is easily distinguished from the preceding species, by its longer thin and dull leaves, and the much shorter calyx.

3. PYROLA CHLORANTHA, *Nutt.* *Greenish-flowered Wintergreen.*

Leaves (small) orbicular-ovate, entire or obscurely denticulate, coriaceous, dull, shorter than the petiole, somewhat veiny; scape nearly naked; raceme few-flowered; calyx short, the lobes rather obtuse; stigma with 5 erect teeth.—*Swartz in act. holm.* 1810. *p.* 190. *t.* 5; *Nutt. gen.* 1. *p.* 273; *Beck, bot. p.* 226; *Lodd. bot. cab. t.* 1512; *Hook. fl. Bor.-Am.* 2. *p.* 46; *DC. prodr.* 7. *p.* 773. P. asarifolia, *Radd. l. c. p.* 23 *t.* 4. *f.* 1; *Torr. fl.* 1. *p.* 423, excl. syn. *Michx., Pursh & Gold.; Beck, l. c.*

Leaves about an inch long, varying from nearly orbicular to broadly ovate or obovate, sometimes retuse and a little cordate or unequal at the base, dark green; the petiole 1 – 2 inches long, scarcely veined above, conspicuously but sparingly veined underneath. Scape 5 – 8 inches long, acutely angular, naked or with a solitary small scale. Raceme 5 – 8-flowered, often secund; the flowers smaller than in *P. elliptica*, slightly odorous. Calyx about one-fourth the length of the corolla. Petals elliptical, a little spreading, greenish white. Style longer than the corolla: stigma minutely 5-toothed.

Dry sandy woods. Near Schenectady (*Dr. L. C. Beck*); Pine plains near Rome (*Dr. Knieskern*); Penn-Yan (*Dr. Sartwell*); Rensselaer county (*Dr. Wass*), and in the northern part of the State. June.

4. PYROLA ULIGINOSA, *Torr. & Gr.* (Plate LXIX.) *Swamp Wintergreen.*

Leaves nearly orbicular, obscurely crenate-denticulate, coriaceous, longer than the petiole, somewhat veiny, nearly dull; scape bracteate; raceme many-flowered; calyx one-fourth the length of the petals, the segments broadly ovate, acute; stigma with five small erect teeth.—*Torr. & Gr. in Geol. report of N. York*, 1841.

Rhizoma long and creeping. Leaves 1½ – 2 inches in diameter, sometimes inclining to ovate or obovate, of a pretty firm texture, abruptly decurrent on the petiole at the base; the veins rather prominent, but not numerous. Scape 6 – 12 inches high, striate-angular, furnished with 2 – 4 conspicuous lanceolate bracts. Raceme 7 – 12-flowered, loose. Flowers about two-thirds as large as in *P. elliptica*. Petals obovate-oblong, rather connivent, dull purplish. Stamens ascending: filaments smooth: anthers (in the expanded flower) with two short perforated horns at the summit; the lobes 2-celled, but the septum at length separating from the connective. Ovary depressed-globose: style declined and flexuous, filiform-clavate, distinctly annulate at the summit: stigma with five distinct obtuse teeth.

Sphagnous swamps, Oriskany, Oneida county (*Dr. Knieskern*). June. This species is intermediate between *P. rotundifolia* and *P. chlorantha*: differing from the former in its smaller, less coriaceous and nearly dull leaves, smaller purplish flowers and much shorter calyx; from the latter in its larger leaves, bracteate scape and acuminate calyx-segments, as well as in the color of the flowers.

** *Stamens erect: style straight: stigma dilated, not annulate.*

5. PYROLA SECUNDA, *Linn.* *One-sided Wintergreen.*

Leaves broadly ovate, acute, serrate, longer than the petiole; raceme many-flowered, dense, the flowers all leaning one way; style exserted; stigma depressed, obtusely 5-lobed.—*Linn. sp.* 1. *p.* 396; *Engl. bot. t.* 517; *Fl. Dan. t.* 402; *Michx. fl.* 1. *p.* 250; *Pursh, fl.* 1. *p.* 299; *Bigel. fl. Bost. p.* 174; *Torr. fl.* 1. *p.* 434; *Beck, bot. p.* 227; *Darlingt. fl. Cest. p.* 265; *Hook. fl. Bor.-Am.* 2. *p.* 45; *DC. prodr.* 7. *p.* 774.

Rhizoma long and slender. Stems 1 – 2 inches long, decumbent. Leaves rather membranaceous, about an inch long, sharply serrated, a little shining, much longer than the petiole. Peduncle scape-like, 4 – 6 inches high, furnished with several small lanceolate bracts. Raceme 1 – 2 inches long. Calyx very small, with short ovate segments. Corolla greenish white; the petals oblong, erect. Stamens about as long as the corolla: anthers rose-color; the lobes imperfectly 2-celled. Style thick: stigma peltate.

Shady woods, in rich soil; rare in the southern part of the State; rather common in the western counties. June – July. Indigenous also to Europe.

§ 2. MONESES, Salisb *Peduncles one-flowered: stigma radiately 5-parted: sutures of the capsule not woolly.*

6. PYROLA UNIFLORA, *Linn.* *One-flowered Wintergreen.*

Leaves nearly orbicular, serrate; scape one-flowered; style straight.—*Linn. sp.* 1. *p.* 397; *Engl. bot. t.* 517; *Michx. fl.* 1. *p.* 250; *Pursh, fl.* 1. *p.* 299; *Bigel. fl. Bost. p.* 174; *Torr. fl.* 1. *p.* 434; *Beck, bot. p.* 227; *Hook. fl. Bor.-Am.* 2. *p.* 45. Moneses grandiflora, *Salisb. in Gray arrang. Brit. pl.* 2. *p.* 403; *DC. prodr.* 7. *p.* 775.

Stem very short, ascending. Leaves often orbicular-ovate or sometimes reniform, 6 – 8 lines long, dull, membranaceous, distinctly crenate-serrate, usually longer than the petiole. Scape 2 – 5 inches high, with one or two small ovate bracts. Flower 6 – 8 lines in diameter. Calyx scarcely one-fifth the length of the petals, 5-parted; the segments ovate, obtuse. Petals white or sometimes tinged with rose-color, nearly orbicular, spreading. Stamens shorter than the petals; the anther-lobes imperfectly 2-celled. Style rather short and thick: stigma large, with five conspicuous rays. Capsule depressed, obtusely 5-angled.

Woods; not rare in the northern part of the State. Near Troy (*Dr. Wright*); Otsego county (*Dr. Douglas*); Yates county (*Dr. Sartwell*); Chautauque county (*Miss Hazeltine*). June. A native also of Europe.

13. CHIMAPHILA. *Pursh, fl.* 1. *p* 300; *Endl. gen.* 4348. CHIMAPHILA.

[From the Greek, *cheima*, winter, and *phileo*, to love; in allusion to the English name, *Wintergreen.*]

Calyx 5-cleft. Petals 5, concave, spreading. Stamens 10; the filaments dilated in the middle, hairy or ciliate: anthers with two pores at the base, inverted after flowering; the lobes one-celled. Ovary obtusely 5-angled, 5-celled: style very short, immersed in a depression of the ovary: stigma orbicular, peltate, obscurely 5-lobed. — Low suffruticose plants. Leaves at the summit of the stem, evergreen, coriaceous, lanceolate, serrate. Peduncle terminal, bearing several flowers in an imperfect umbel or corymb. Petals white, tinged with purple.

1. CHIMAPHILA UMBELLATA, *Nutt.* *Pipsissewa. Prince's Pine.*

Leaves cuneate-lanceolate, acute at the base, uniformly green; flowers in an umbellate corymb; filaments ciliate on the margin, smooth on each face.—*Nutt. gen.* 1. *p.* 274; *Bart. veg. mat. med.* 1. *t.* 1; *Hook. fl. Bor.-Am.* 2. *p.* 49; *DC. prodr.* 7. *p.* 775. C. corymbosa, *Pursh, fl.* 1 *p.* 300. Pyrola umbellata, *Linn. sp.* 1. *p.* 396; *Lam. ill. t.* 367. *f.* 2; *Bot. mag. t.* 778; *Michx. fl.* 1. *p.* 251; *Bigel. fl. Bost. p.* 174, *and med. bot. t.* 21; *Torr. fl.* 1. *p.* 435; *Beck, bot. p.* 227; *Darlingt. fl. Cest. p.* 266.

Root long and woody, throwing up leafy and flowering stems at intervals. The stems are ascending, 3 – 4 inches high, simple or branching at the base. Leaves 1½ – 2 inches long, often in 2 – 3 imperfect whorls, smooth and shining, rather acute, sharply serrate. Peduncle solitary, 3 – 6 inches long, erect, smooth, bearing 4 – 6 flowers at the summit; the pedicels puberulent, nodding, either distinctly corymbed or somewhat umbellate, erect in fruit. Calyx much smaller than the corolla; the segments roundish, ciliolate. Petals yellowish white with a tinge of purple, roundish, concave, minutely ciliate. Stamens nearly as long as the petals: filaments roundish-obovate at the base: anthers large, pale violet. Ovary depressed-globose, surrounded at the base with a glandular disk: style very short but distinct, inversely conical, immersed and concealed in the cavity at the top of the ovary: stigma large, convex, very viscid. Capsule depressed, obtusely 5-angled; the margin of the valves not connected by a web.

Dry woods; common. *Fl.* June. *Fr.* September. This plant grows also in the north of Europe. It is reputed to possess valuable medicinal qualities, and has long been used by the Indians as a tonic and diuretic. It is astringent and somewhat aromatic to the taste. The common mode of administering it is in the form of infusion.

2. CHIMAPHILA MACULATA, *Pursh.* (Plate LXX.) *Spotted Wintergreen.*

Leaves ovate-lanceolate, obtuse at the base, remotely serrate, variegated; flowers 2 – 3, umbellate; dilated base of the filaments villous.—*Pursh, fl.* 1. *p.* 300; *Nutt. gen.* 1. *p.* 275; *Ell. sk.* 1. *p.* 505; *Bart. fl. N. Am.* 1. *p.* 40. *t.* 11; *Hook. fl. Bor.-Am.* 2. *p.* 49; *DC.*

prodr. 7. *p.* 775. Pyrola maculata, *Linn. sp.* 1. *p.* 396 ; *Michx. fl.* 1. *p.* 251 ; *Bot. mag. t.* 897 ; *Bigel. fl. Bost. p.* 175 ; *Torr. fl.* 1. *p* 435 ; *Beck, bot. p.* 227 ; *Darlingt. fl. Cest. p.* 267.

Habit in every respect that of the preceding species. Leaves about 2 inches long, tapering to a sharp point, purplish underneath, dark green above and marked with a broad whitish line along the midrib and primary veins ; the teeth sharp and salient. Peduncles usually solitary, but sometimes two from a single stem, puberulent, 3 – 5 inches long. Flowers usually 2 or 3, but sometimes solitary, larger than in *P. umbellata.* Pedicels about three-fourths of an inch long. Petals white, with a tinge of violet. Stamens violet-purple ; the lower part of the filaments dilated into a broad roundish disk, which is very villous on the upper part. Style slightly exserted : stigma convex.

Woods ; frequent. *Fl.* June and early part of July : usually about two weeks later than the preceding species. It is not used medicinally, and is only slightly aromatic.

SUBORDER IV. MONOTROPEÆ. *Nutt.* THE BIRD'S-NEST TRIBE.

Petals distinct or united. Anthers opening longitudinally or by transverse chinks (never by a terminal pore). Ovary free from the calyx. Fruit a capsule, opening as in PYROLEÆ. Seeds with a loose or winged testa. — Herbaceous plants, parasitic on the roots of trees, destitute of green color, and with scales instead of leaves.

14. MONOTROPA. *Linn.* (excl. sp.) ; *Endl. gen.* 4351. *BIRD'S-NEST.*

[From the Greek, *monos,* one, and *trepo,* to turn; the flowers being turned to one side.]

Calyx none. Corolla 4 – 5-petalled, persistent : petals slightly united below, gibbous at the base. Stamens 8 – 10 : filaments alternating at the base, with short reflexed tooth-like processes : anthers excentrically peltate or reniform, one-celled, at length opening flat. Ovary ovoid : style cylindrical : stigma orbicular, dilated, depressed in the centre. Capsule 4 – 5-celled. Seeds subulate. — Flowers nodding, finally erect.

§ 1. MONOTROPA proper. *Stem one-flowered. Plant inodorous.*

1. MONOTROPA UNIFLORA, *Linn.* (Plate LXXI.) *Indian-pipe. Tobacco-pipe.*

Stem smooth ; flowers nodding, at length erect ; stamens 10.—*Linn. sp.* 1. *p.* 387 ; *Michx. fl.* 1. *p.* 266 ; *Pursh, fl.* 1. *p.* 303 ; *Nutt. gen.* 1. *p.* 271 ; *Ell. sk.* 1. *p.* 477 ; *Bigel. fl. Bost. p.* 175 ; *Bart. fl. N. Am. t.* 86. *f.* 1 ; *Torr. fl.* 1. *p.* 431 ; *Beck, bot. p.* 268 ; *Darlingt.*

fl. Cest. p. 268; *Hook. fl. Bor.-Am.* 2. *p.* 49; *DC. prodr.* 7. *p.* 781. M. Morisoniana, *Michx. l. c.; DC. l. c.*

Whole plant pure white, but nearly black when dry. Root roundish, consisting of densely matted coralloid brittle fibres. Stems often clustered, 5 – 8 inches high, simple, succulent, clothed with oblong or lanceolate scattered scales. Flower about three-fourths of an inch long, often with several bracteate scales at the base resembling a calyx. Corolla 4 – 5-petalled: petals spatulate-cuneate, gibbous at the base, pubescent externally, pubescent inside. Stamens rather shorter than the petals: filaments pubescent: anthers at first reniform, opening by two transverse chinks. Ovary large, ovoid, acute, tapering into a short thick style: stigma large, orbicular, not hairy on the margin, depressed in the centre. Capsule obtusely 5-angled: placentæ large and fleshy.

Shady woods; common. *Fl.* June – July, sometimes much later. *Fr.* September. The singular form of this plant, much resembling that of a tobacco-pipe, and its pure white color when fresh, make it an object of interest even to persons unacquainted with botany. It is probably always parasitic on the roots of other plants, but it sometimes at least seems to have a very slight connexion with them. *M. Morisoniana* of Michaux is doubtless a var. of this species, as the flowers become erect when old.

§ 2. HYPOPITHYS. *Stems many-flowered; the flowers in a secund raceme. Plant of a musky odor.*

2. MONOTROPA LANUGINOSA, *Michx.* (Pl. lxxii.) *Pine-sap. False Beech-drops.*

Stem, bracts and flowers pubescent; capsule globose-ovoid.—*Michx. fl.* 1. *p* 266; *Pursh, fl.* 1. *p.* 303; *Bigel. fl Bost. p.* 176; *Ell. sk.* 1. *p.* 478; *Torr. fl.* 1. *p.* 430; *Beck, bot. p.* 267; *Darlingt. fl. Cest. p.* 266; *Hook. fl. Bor.-Am.* 2. *p.* 49. Hipopythis lanuginosa, *Nutt. gen.* 1. *p.* 271; *DC. prodr.* 7. *p.* 781.

var. *rubra:* stem and flowers deep rose-color.

var. *glabriuscula:* stem and scales nearly or quite smooth; flowers slightly pubescent. H. Europæa, *Nutt. l. c.?* Monotropa Hypopithys, *Michx.*, *Pursh* and others?

Root a ball of dense fleshy fibres, nearly as in the preceding species. Whole plant (except in the var. *rubra*) of a yellowish brown or tan-color. Stems clustered, 4 – 8 inches high, simple; the lower part (as well as the lower scales) usually smoothish. Scales lanceolate-ovate; those near the root closely imbricated, scattered above. Raceme 5 – 10-flowered, rarely compound, at first incurved, with the flowers nodding, but finally erect. Pedicels much shorter than the flower, elongated in fruit. Flowers 6 – 7 lines long, with several bracteal scales at the base which resemble a calyx. Petals 4 – 6; the inner ones spatulate-oblong, the outer gibbous at the base. Stamens often 10 in the terminal flower, mostly 8 in the others: filaments hairy: anthers reniform-peltate, opening horizontally all around. Ovary ovoid: style thick, about as long as the stamens: stigma orbicular, bearded on the margin. Capsules erect.

Moist woods, particularly under Beech trees; rather common. var. *glabriuscula*, Yates county (*Dr. Sartwell*). July – September. The rose-colored variety flowers late in the season. I strongly suspect that *M. lanuginosa* is not specifically distinct from *M. Hypopithys* of Europe.

15. PTEROSPORA. *Nutt. gen.* 1. *p.* 269; *Lindl. coll. bot. no.* 5. *t.* 5.

GIANT BIRD'S-NEST.

[From the Greek, *pteron*, a wing, and *spora*, a seed.]

Calyx 5-parted. Corolla monopetalous, ovate; the border 5-toothed and reflexed. Stamens 10, included: filaments subulate: anthers roundish, horizontal, 2-celled, with two bristles at the base. Style short, terete: stigma capitate, 5-lobed; the lobes connivent. Capsule depressed-globose, 5-celled. Seeds very numerous and minute, with a large terminal reticulated wing. — A plant with the habit of MONOTROPA, with the numerous flowers in long racemes: pedicels slender, recurved.

1. PTEROSPORA ANDROMEDEA, *Nutt.* *Giant Bird's-nest.*

Nutt. l. c.; Torr. fl. 1. *p.* 429; *Lindl. l. c.; Beck, bot. p.* 228; *Hook. fl. Bor.-Am.* 2. *p.* 48; *DC. prodr.* 7. *p.* 779. Monotropa procera, *Torr. in Eat. man. bot.* (ed. 2. 1818), *p.* 324.

Root roundish, very astringent, consisting of dark matted coralloid fibres. Every part of the plant, except the corolla, covered with brownish viscid hairs. Stem 8 inches to 2 feet or more in height, straight, simple, grooved, brownish red or purplish; the base clothed with imbricated lanceolate scales. Raceme bearing 20 – 50 or more flowers. Pedicels about half an inch long, scattered, sometimes fascicled, with a rather long linear bract at the base. Flower about one-third of an inch in diameter. Calyx about half the length of the corolla: segments oblong, glandularly ciliate. Corolla about one-fourth of an inch long, somewhat urceolate; the segments of the orifice oblong, retuse, rose-red; the rest of the corolla white. Stamens included: filaments flat, smooth, without intermediate tooth-like processes at the base: anthers small, fixed by one side, with two subulate reflexed processes at the base; the cells closely united, opening by a transverse chink. Ovary depressed, obscurely 5-angled: style short, but distinct: stigma large, divided into five acute connivent lobes. Capsule membranaceous, with a deep funnel-shaped cavity at the top; the valves not separating from the axis. Seeds globose-ovoid, sulcate, with a broad roundish reticulated and transparent wing or crest at the upper extremity.

Clayey and limestone soils; various places in the vicinity of Albany (*Dr. E. James, Prof. Eaton, Dr. Wright, Mr. Tracy*); Banks of Seneca Lake (*Dr. Gray*); near Niagara Falls (*Mr. Charles Whitlow*); Little Falls of the Mohawk (*Mr. Cooper*); Port Henry, on Lake Champlain (*Prof. A. Hopkins*); near Sacket's-Harbor (*Dr. Wood*); Oriskany (*Mr. George Vasey*); shady ravines near Union College, and Schoharie, 4 miles east of the Court House, on a ridge of oak and pines (*Dr Knieskern*); woods north of Peekskill (*Dr. Mead*). This singular plant is very rare, except in the States of New-York and Vermont. It has been found in Canada, and west to the sources of the Oregon, but only sparingly. Mr. I. Tracy is confident that it is perennial; for it flowered after the roots were transplanted into his garden. In some cases it is very difficult to find it connected in any way with the roots of other plants.

EXPLANATION OF THE PLATES IN VOLUME FIRST.

PLATE 1. CLEMATIS OCHROLEUCA (page 6) in flower, with a separate head of the ripe carpels.

2. ANEMONE MULTIFIDA (page 9) in flower: the fruit represented separately.

3. TROLLIUS LAXUS (page 18). *Fig.* 1. a petal moderately magnified: *fig.* 2. stamen, also magnified.

4. CIMICIFUGA RACEMOSA (page 23). *Fig.* 1. flower slightly magnified: *fig.* 2. petal; *fig.* 3. stamen; both magnified: *fig.* 4. raceme of the ripe fruit, nat. size.

5. MAGNOLIA GLAUCA (page 27). The ripe fruit exhibits two of the seeds, suspended on their long thread-like funiculi.

6. SARRACENIA PURPUREA: var. *heterophylla* (page 41). *Fig.* 1. side view of the stamens and stigma: *fig.* 2. ovary (the petals turned down and cut off), with the style, and under surface of the stigma.

7. ARABIS DENTATA (page 54). The siliques, of the natural size, represented separately. *Fig.* 1. flower enlarged: *fig.* 2. petal: *fig.* 3. stamen: *fig.* 4. seed; *fig.* 5. transverse section of the same: *fig.* 6. embryo removed: all more or less magnified.

8. VIOLA STRIATA (page 73).

9. HUDSONIA TOMENTOSA (page 80). *Fig.* 1. leaf: *fig.* 2. flower laid open; the sepals and two of the petals removed: *fig.* 3. section of the ovary: all magnified.

10. DROSERA FILIFORMIS (page 82). *Fig.* 1. stamen: *fig.* 2. ovary and styles, both magnified: *fig.* 3. seed, much magnified.

11. PARNASSIA CAROLINIANA (page 83). *Fig.* 1. stamen: *fig.* 2. nectary, or triple abortive stamen: *fig.* 3. ovary; *fig.* 4. transverse section of the same, showing the placentæ: *fig.* 5. ovule: all magnified.

PLATE 12. HYPERICUM PYRAMIDATUM (page 85). *Fig.* 1. ripe capsule; *fig.* 2. cross section of the same, both of natural size: *fig.* 3. seed; *fig.* 4. cross section of the same: *fig.* 5. embryo.

13. HYPERICUM KALMIANUM (page 86). *Fig.* 1. one of the parcels of stamens: *fig* 2. a petal: *fig.* 3. pistil: *fig.* 4. cross section of the capsule: all more or less magnified.

14. ARENARIA SQUARROSA (page 95). *Fig.* 1. petal: *fig.* 2. calyx and capsule: *fig.* 3. seed: all magnified.

15. ARENARIA GRŒNLANDICA (page 95). *Figs.* 1. & 2. petals: *fig.* 3. calyx and capsule: *fig.* 4. seed: all magnified.

16. SILENE STELLATA (page 100). *Fig.* 1. ovary and styles: *fig.* 2. petal.

17. FLŒRKIA PROSERPINACOIDES (page 127). *Fig.* 1. flower: *fig.* 2. ovaries and style, moderately magnified: *fig.* 3. seed, considerably magnified.

18. ACER DASYCARPUM (page 136). *Fig.* A. cluster of fertile flowers, nat. size. *Fig.* 1. perfect flower, nat. size; *fig.* 2. the same magnified; *fig.* 3. the same laid open: *fig.* 4. ovary and styles: *fig.* 5. sterile flower: *fig.* 6. abortive ovary: all but fig. 1. magnified.

19. EUONYMUS AMERICANUS (page 142). *Fig.* 1. fruit of the natural size.

20. CEANOTHUS OVALIS (page 145). *Fig.* 1. flower: *fig.* 2. petal: *fig.* 3. flower with the petals and stamens removed, showing the disk; *fig.* 4. longitudinal section of the same: *fig.* 5. seed; *fig.* 6. cross section of the same: *fig.* 7. embryo: all magnified.

21. ERVUM HIRSUTUM (page 156). *Fig.* 1. plant of the natural size, in flower and fruit: *fig.* 2. a flower magnified.

22. LATHYRUS OCHROLEUCUS (page 157) *Fig* 1. calyx: *fig.* 2. vexillum: *fig.* 3. one of the wings: *fig.* 4. keel: *fig.* 5. stamens: *fig.* 6. ovary.

23. PHASEOLUS PERENNIS (page 160) in flower and fruit.

24. CLITORIA MARIANA (page 163). *Fig.* 1. legume; *fig.* 2. the same laid open: *fig.* 3 embryo: *fig* 4. vexillum: *fig.* 5. keel: *fig.* 6. wing: *fig.* 7. stamens and style: all nat. size.

25. ASTRAGALUS CANADENSIS (page 172). *Fig.* 1. spike of legumes, nat. size: *fig.* 2. transverse section of a legume, magnified.

26. PHACA NEGLECTA (page 173). *Fig.* 1. legumes, natural size: *fig.* 2. flower: *fig* 3 wings: *fig.* 4. keel: *fig* 5. stamens, including the pistil; *fig.* 6. pistil, separate; all slightly magnified: *fig.* 7. legume, open at the ventral suture, to show the seed; *fig.* 8. transverse section of the same.

27. STYLOSANTHES ELATIOR (page 174). *Fig.* 1. sterile flower: *fig.* 2. vexillum: *figs.* 3. & 4 wings: *fig.* 5 keel: *fig.* 6. monadelphous stamens, enclosing the style: *fig.* 7. pistil: *fig.* 8. fertile flower: *fig.* 9. the two bracts separate: *fig.* 10 ovary laid open: *fig.* 11. legume: *fig.* 12. seed: *fig.* 13. embryo: all magnified.

28. DECODON VERTICILLATUM (page 229). *Fig.* 1. flower; *fig.* 2. the same with the petals removed: *fig.* 3. fruit.

PLATE 29. LUDWIGIA SPHÆROCARPA (page 238). *Fig.* 1. flower, side view; *fig.* 2. inside of the same: *fig.* 3. cross section of a capsule: *fig.* 4. seed: *fig.* 5. embryo.

30. ECHINOCYSTES LOBATA (page 250). *Fig.* 1. andrœcium, consisting of three diadelphous stamens in close contact: *fig.* 2. fertile flower, with the ovary enlarged: *fig.* 3. style and stigmas: *fig.* 4. section of the ovary (all magnified): *fig.* 5. ripe fruit burst open at the summit; *fig.* 6. cross section of the same: *fig.* 7. seed (all nat. size).

31. SANICULA MARILANDICA (page 264). *Fig.* 1. umbellet, showing the fertile and sterile flowers: *fig.* 2. young fruit: *fig.* 3. half of a mature fruit: *fig.* 4. one of the hooked prickles: *fig.* 5. section of the fruit: all mag.

32. SANICULA CANADENSIS (page 265). *Fig.* 1. umbellet of sterile flowers and young fruit: *fig.* 2 fruit: *fig.* 3. section of the fruit: *fig.* 4. one of the hooked prickles: all magnified.

33. ZIZIA CORDATA (page 270). *Fig.* 1. fruit; *fig.* 2. section of the same, both magnified.

34. THASPIUM ATROPURPUREUM (page 272). *Fig.* 1. fruit, natural size; *figs.* 2. & 3. the same magnified; *fig.* 4. cross section of the same, more mag.

35. CONIOSELINUM CANADENSE (page 275). *Fig.* 1. umbel of fruit, natural size: *fig.* 2. fruit, magnified; *fig.* 3. cross section of the same, also magnified.

36. ARCHANGELICA HIRSUTA (page 277). *Fig.* 1. umbellet of fruit, natural size: *fig.* 2. flower: *fig.* 3. section of the fruit; the last two magnified.

37. ARCHEMORA RIGIDA (page 278), exhibiting varieties in the form and breadth of the leaves. *Fig.* 1. flower, magnified: *fig.* 2. umbellet of fruit, natural size: *fig.* 3. cross section of the fruit, magnified.

38. OSMORRHIZA LONGISTYLIS (page 281). *Fig.* 1. flower: *fig.* 2. fruit; both magnified.

39. ERIGENIA BULBOSA (page 283). *Fig.* 1. umbellet of flowers, natural size: *fig.* 2. flower; *fig.* 3. pistil (both magnified): *fig.* 4. fruit, natural size: *fig.* 5. fruit; *fig.* 6. cross section of the same (both magnified).

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END OF VOLUME I.

Clematis ochroleuca.

Silky Virgin's Bower.

Lith. of Endicott

Anemone multifida.

Cut-leaved Wind flowor.

Lith. of Endicott.

Trollius laxus.

American Globe Flower.

Lith. of Endicott.

Cimicifuga racemosa

Black - Snakeroot.

Lith. of Endicott, New York

Magnolia glauca. Swamp Magnolia or Sweet Bay.

Purple side Saddle flower : Yellow variety

Arabis dentata.

Toothed Wall Cress.

Viola striata.

Striated Violet.

Hudsonia tomentosa.

Woolly Hudsonia.

Lith. of Endicott

Drosera filiformis.

Thread-leaved Sundew.

Lith. of Endicott.

Parnassia Caroliniana

Carolina Grass of Parnassus.

Lith

Hypericum pyramidatum

Giant's St. John's-Wort.

Lith. of Endicott New York

Hieracium Kalmii

Kalm's St. John's Wort.

Lith. of Endicott N.Y.

2 1 3

Arenaria squarrosa

Lith of Endicott

Sqarrose Sandwort.

Arenaria Grænlandica

Greenland Sandwort.

Silene stellata

Lith. of Endicott

Star Catchfly.

Florkea proserpinacoides

False Mermaid.

Lith. of Pinkerton

Acer dasycarpon.

Silver-leaved Maple.

Lith et Endicott

Euonymus Americanus.

Strawberry Tree

Lith. of Endicott N.Y.

Ceanothus ovalis.

Narrow-leaved Jersey Tea.

Ervum hirsutum.

Hairy Tare.

Lathyrus ochroleucus. Cream colored Vetchling

Phaseolus perennis

Perennial Kidney Bean.

Endicotts Lith.

Clitoria Mariana.

Maryland Clitoria.

Astragalus Canadensis.

Canadian Milk-Vetch.

Lith. of Endicott New York.

Phaca neglecta.

White Bastard Vetch.

Lith. of Endicott.

Stylosanthes elatior.

Pencil-flower.

Decodon verticillatum. Swamp Willow-herb.

Lith et Endicott

Ludwigia sphaerocarpa! Lith of Endicott.

Round-fruited Ludwigia .

Echinocystis lobata.

Wild Balsam apple.

Sanicula Marilandica

Long-styled Sanicle

Lith. of Endicott N. York.

Sanicula Canadensis.

Canadian Sanicle.

Lith. of Endicott

Zizia cordata.

Heart-leaved Zizia.

Thaspium atropurpureum.

Purple-flowered Thaspium

Conioselinum Canadense.

Canadian Conioselinum.

Lith. of Endicott

Archangelica hirsuta

Downy Angelica.

Lith of Endicott New York.

Archemora rigida

Rigid-leaved Archemora

Agnes Ketchell Del.

Osmorhiza longistylis.

Sweet Cicely.

Erigenia bulbosa.

Bulbous-rooted Erigenia

Lith. of Endi...

Aralia nudicaulis.

Wild Sarsaparilla.

Lith of Endicott.

Cornus paniculata

Panicled Dogwood.

Lith. of Endicott New York

Lonicera ciliata

Fly Honeysuckle.

Viburnum pubescens

Pubescent Viburnum

A *Hedyotis ciliolata.* Fringed-leaved Bluets.

B *Hedyotis longifolia.* Long-leaved Bluets.

Lith. of Endicott

Valeriana sylvatica

Tall marsh Valerian

Lith of Endicott

Fedia Fagopyrum

Buckweat Corn-Salad.

Lith. of Endicott New York

Liatris spicata.

Button Snake-root.

Eupatorium leucolepis.

White-scaled Hemp-weed.

Lith of Endicott.

Endicott's Lith

Nardosmia palmata.

Sweet Coltsfoot.

Aster Radula

Rasp-leaved Aster.

Aster spectabilis

Showy Aster.

Aster ptarmicoides. Sneeze-wort Aster

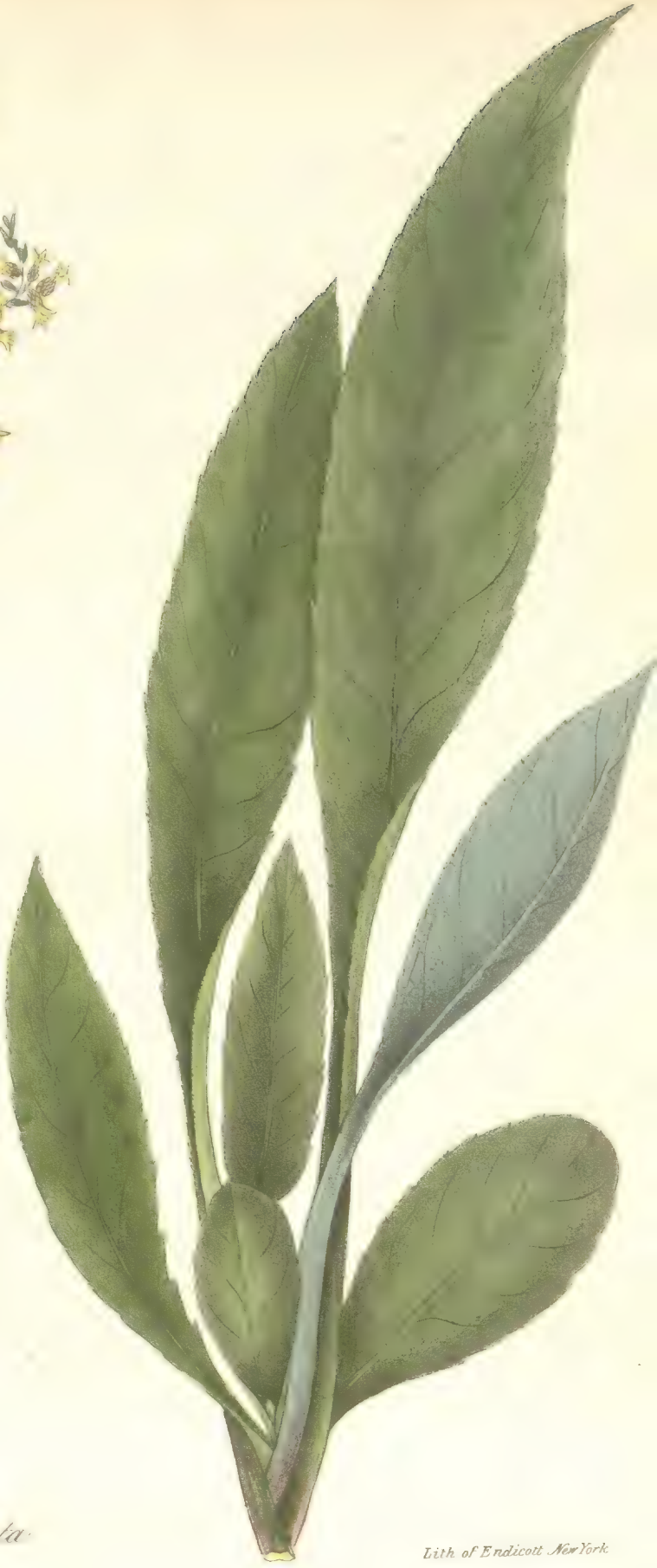
Lith. of Ingleby

Solidago Ohioensis

Ohio Golden-rod

Solidago stricta

Willow-leaved Golden-rod



Solidago neglecta

Golden Rod .

Lith. of Endicott New York

Chrysopsis falcata

Sickle-leaved Chrysopsis.

Lith. of Endicott

Coreopsis rosea.

Small rose-colored Coreopsis.

Lith. of Endicott

Bidens Beckii

Lith. of Endicott New Yor

Beck's Bidens.

Cacalia atriplicifolia

Orach-leaved Cacalia

Arnica mollis.

Soft Arnica

Cirsium arvense.

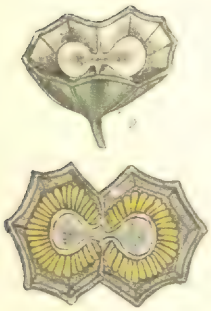
Lith. of Endicott New York

Canada Thistle.

Lobelia syphilitica

Lith. of Endicott, New York

Blue Cardinal-flower.



Lobelia inflata

Lith of Endicott New York

Indian Tobacco.

Lobelia cardinalis.

Cardinal Flower.

Specularia perfoliata

Stem-clasping Specularia.

Lith. of Endicott

Azalea viscosa.

White flowered Azalea.

Lith. of Endicott N.York

Gaylussacia dumosa.

Lith. of Endicott

Chiogenes.

Lith. of Endicott

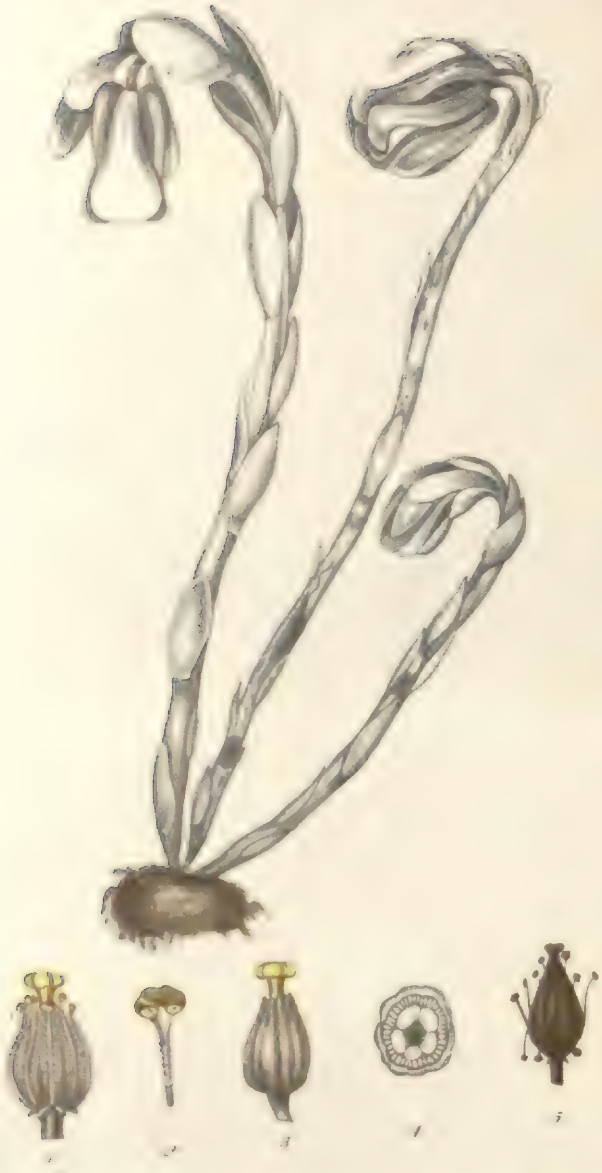
Pyrola ulbiginosa

Swamp Winter-green

lith. of Endicott

Chimaphila maculata.

Spotted Winter-green.



Monotropa uniflora

Indian pipe

Hypopithys lanuginosa. Lith. of Endicott.

Pine-sap.